

PEER REVIEW FORM  
ESAT ZONE 2  
ENVIRONMENTAL SERVICES ASSISTANCE TEAMS

REGION 6 WORK TEAM  
INTERNAL REVIEW OF  
ESAT - 6 - \_\_\_\_\_

Current Date 9/9/93 Due Date 9/16/93

TID No. 6A - 9303 - 231 TID Description RCRA Organic data review

Document Index Code(s) \_\_\_\_\_

Document Subject/Title Resubmission Data Review Report for RCRA Project 309-R0603601

Document File Name(s) & Location C:\WP51\FILES\SAS\RCRA-P14.43 Room 136

Author(s) Gene Zhu

EPA Task Monitor Mahmoud El-Feky

Review Schedule

| Reviewer      | Review Type* | S | When Needed | Date Review Completed | Reviewer's Initials |
|---------------|--------------|---|-------------|-----------------------|---------------------|
| Terry Fan     | full         |   | 9/16/93     | 9-10-93               | JF                  |
| Wallace Doong | full         |   | 9/16/93     | 9/10/93               | WD                  |
|               |              |   |             |                       |                     |

\* Full, Format, Technical, or Other: \_\_\_\_\_

Comments (Please initial) \_\_\_\_\_

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06-9303-218-6385A

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
HOUSTON BRANCH  
10625 FALLSTONE ROAD  
HOUSTON, TEXAS 77099

RESUBMITTED DATA REVIEW REPORT

|        |                           |             |                          |
|--------|---------------------------|-------------|--------------------------|
| DATE : | <u>9/9/1993</u>           | PROJECT # : | <u>RCRA 309-R0603601</u> |
| TO :   | <u>Bryon Heineman</u>     | SAS # :     | <u>N/A</u>               |
|        | <u>(6H-CX)</u>            | SDG # :     | <u>P1443</u>             |
| FROM : | <u>Gene Zhu - ManTech</u> | LAB :       | <u>NDRC</u>              |
|        | <u>ESAT, Region 6</u>     | SITE NAME : | <u>Merichem</u>          |

EFFECTS OF RESUBMITTED INFORMATION ON THE ORIGINAL DATA:

A. VOA:

1. The laboratory resubmitted the revised diskette and Form IV's in this resubmission. The diskette deliverable cannot be reviewed at this time in Region VI. Please use only the resubmitted Form IV's, p.64, 65, and 66.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

July 2, 1993

*Complete Copy  
of resubmission dated July 2, 1993.*

MEMORANDUM

SUBJECT: Data Validation Request  
Merichem Boiler and Industrial Furnace (BIF) Inspection,  
February 4 and 5, 1993.

FROM: Rena McClurg *Rena McClurg*  
Regional Project Officer  
Technical Section (6H-CX)  
RCRA Enforcement Branch

TO: Mel Ritter  
ESAT Coordinator  
Houston Laboratory

On February 4 and 5, 1993, samples were collected from the Merichem Company facility in Houston, Texas as part of a BIF inspection. The analytical work was performed by NDRC Laboratories under contract to the region. The analytical data resulting from these samples were received by the EPA-Dallas on March 12, 1993, and transmitted to the Houston Lab for validation by letter dated March 16, 1993. The Houston Lab completed its initial data validation by letters dated April 19, 1993, and April 28, 1993, for the inorganic and organic packages respectively. The initial data validation reports from Houston contained a number of questions for NDRC. We have now received NDRC's response to the data review packages. NDRC's response is enclosed for immediate transfer to the data validator. Please forward this information to the appropriate personnel to complete the data validation process. If you have any questions, please contact Bryon Heineman at 214-655-8318.

Attachment

*CoZ*

*RCWD  
7/22/93  
cust?*

*cm*

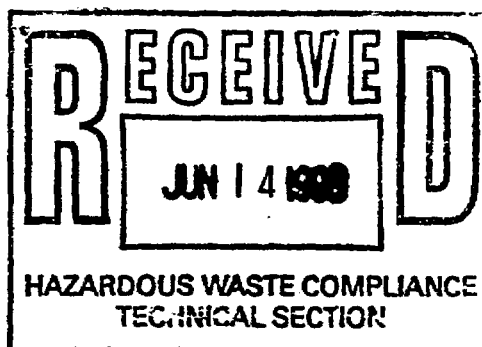
PRC Environmental Management, Inc.  
1 Dallas Centre  
350 North St. Paul Street  
Suite 2600  
Dallas, TX 75201  
214-754-8765  
Fax 214-922-9715

**PRC**

June 11, 1993

Mr. Bryon Heineman  
Work Assignment Manager  
U.S. EPA, Region 6  
1445 Ross Avenue  
Dallas, TX 75202-2733

Re: EPA Contract 68-W9-0006  
Work Assignment No. R06036  
BIF Inspection Sampling Data



Dear Mr. Heineman:

Enclosed are NDRC's comments and revisions regarding the CLP Data Package for Merichem, project no. 309-R0603601, received on June 11, 1993. Also enclosed are the revised diskette deliverable and Form 4's for the volatile organics analysis. If you have any questions or comments, please call me at (214) 754-8765.

Sincerely,

Michael Juscus  
Project Manager

enclosure

cc: Rena McClurg, EPA RPO (letter only)  
Anthony Gardner, PRC EMI (letter only)  
file



# NDRC LABORATORIES, INC.

A member of Inchcape Environmental

1089 East Collins Blvd., Richardson, Texas 75081 • (214) 238-5591 • FAX (214) 238-5592

BEAUMONT

DALLAS

HOUSTON

DATE RECEIVED: 05-06-FEB-1993

REPORT NUMBERS: D93-1441, 1443

REPORT DATE: 03-MAR-1993

SAMPLE SUBMITTED BY : PRC-EMI

ADDRESS : 350 N. St. Paul St. Suite 2600  
Dallas, Texas 75201

ATTENTION : Mr. Michael Juscius

PROJECT : 309-R0603601 Merichem

DATE SAMPLED : 03-05-FEB-1993

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## CASE NARRATIVE COMMENTS

Enclosed is the revised diskette deliverable for the Volatile Organics analysis for the above referenced jobs. As mentioned in the original Case Narrative, we had been experiencing a difficulty with our diskette generation program for this analysis. The problem has now been resolved and the data on the enclosed disk is correct.

Also enclosed are revised Form 4's for Volatile Analysis. While working on the revised diskette it became apparent that the LCS and the TCLP blank had been assigned to the wrong daily blank resulting in incorrect Form 4's. None of the other forms were affected by this mistake. Please insert these revised pages into the original data package. The new forms have been numbered with numbers corresponding to the appropriate location in the data package. Sorry for any inconvenience this might cause.

NDRC Laboratories, Inc.

Jacqueline A. Wheeler  
Jacqueline Wheeler  
CLP Coordinator

4A  
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKA

Lab Name:NDRC LABORATORIES, INC. Contract:0

Lab Code:0 Case No.: SAS No.: SDG No.:1443P

Lab File ID:BR917 Lab Sample ID:VOA BLANK

Date Analyzed: 2/17/93 Time Analyzed:1915

GC Column:DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID:VOA2

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|
| 01 | 1443-2            | 1443-2           | BR928          | 0209             |
| 02 | 1443-3            | 1443-3           | BR929          | 0243             |
| 03 | TCLPBLK           | TCLP BLANK       | BR934          | 2106             |
| 04 |                   |                  |                |                  |
| 05 |                   |                  |                |                  |
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COMMENTS:

4A  
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBKKB

Lab Name:NDRC LABORATORIES, INC. Contract:0

Lab Code:0 Case No.: SAS No.: SDG No.:1443P

Lab File ID:AS467 Lab Sample ID:VOA BLANK

Date Analyzed: 2/18/93 Time Analyzed:1731

GC Column:DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID:VOA1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

|    | EPA<br>SAMPLE NO.<br>===== | LAB<br>SAMPLE ID<br>===== | LAB<br>FILE ID<br>===== | TIME<br>ANALYZED<br>===== |
|----|----------------------------|---------------------------|-------------------------|---------------------------|
| 01 | VLCS                       | VOA LCS                   | AS469                   | 1845                      |
| 02 |                            |                           |                         |                           |
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COMMENTS:

4A  
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKC

Lab Name:NDRC LABORATORIES, INC. Contract:0

Lab Code:0 Case No.: SAS No.: SDG No.:1443P

Lab File ID:AS488 Lab Sample ID:VOA BLANK

Date Analyzed: 2/19/93 Time Analyzed:0808

GC Column:DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID:VOA1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|
| 01 | 1443-1            | 1443-1           | AS496          | 1408             |
| 02 | 1443-1MS          | 1443-1MS         | AS494          | 1246             |
| 03 | 1443-1MSD         | 1443-1MSD        | AS500          | 1531             |
| 04 |                   |                  |                |                  |
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COMMENTS:

06-9303-218-6385



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
HOUSTON BRANCH  
10625 FALLSTONE RD.  
HOUSTON, TEXAS 77099

Site Merichem

Case# 309-R0603601

SDG# P1443

Date: 4-28-1993

Subject: CLP Data Review

From: Dr Melvin Ritter , ESAT DPO , Region VI

To : B. Heineman , 6H-CX , Region VI

*M. Ritter*

A review of the laboratory raw data for the reference site has been completed by members of the Laboratory Section.  
Samples were:

|            |        |       |       |       |
|------------|--------|-------|-------|-------|
| INORGANIC: | _____  | _____ | _____ | _____ |
|            | _____  | _____ | _____ | _____ |
|            | _____  | _____ | _____ | _____ |
|            | _____  | _____ | _____ | _____ |
|            | _____  | _____ | _____ | _____ |
| ORGANIC:   | 1443-1 | _____ | _____ | _____ |
|            | 1443-2 | _____ | _____ | _____ |
|            | 1443-3 | _____ | _____ | _____ |
|            | _____  | _____ | _____ | _____ |
|            | _____  | _____ | _____ | _____ |

The data was found:

- ( ) Acceptable
- (X) Provisional; use of data requires caution. Problems are noted in Review Summary.
- ( ) Unacceptable; data should not be used. Problems are noted in Review Summary.

Questions regarding the review can be addressed to me.

Attachments

cc: Mahmoud El-Feky, 6E-HO  
Mike Hiatt, EMSL/Las Vegas  
Regional TPO  
Mitzie Dovel, Mantech ENV, VA



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
HOUSTON BRANCH  
10625 FALLSTONE RD.  
HOUSTON, TEXAS 77099

**MEMORANDUM**

Date: 4-28-1993

Subject: CLP Data Review

From: Mahmoud El-Feky, Data Coordinator, Region VI

To: Dr. Melvin Ritter, ESAT DPO, Region VI

Attached is the data review summary for Site Merichem  
Case # 309-R0603601  
SDG # P1443

Data was found: ( ) Acceptable  
(X) Provisional  
( ) Unacceptable

Action required by TPO: ( ) Yes  
(X) No

**COMMENTS:**

- 1- Less than the method-specified sample volume used for two TCLP-BNA samples which resulted in quantitation limits above the TCLP regulatory levels for two or three target analytes.
- 2- Analysis for VOA trip blank exceeded the technical holding time limit.
- 3- VOA compound had high recoveries in the MS/MSD analyses.
- 4- Pyridine was not recovered in the BNA MS/MSD samples and had a low recovery in the BNA LCS analysis.
- 5- The laboratory did not report the spiking levels and % recoveries for the VOA and BNA LCS analytes.



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MANTECH ENVIRONMENTAL TECHNOLOGY, INC.  
ESAT REGION VI  
c/o U.S. ENVIRONMENTAL PROTECTION AGENCY  
10625 FALLSTONE ROAD  
HOUSTON, TX 77099

MEMORANDUM

DATE: April 26, 1993  
TO: Dr. Melvin Ritter, RPO, US EPA, Region VI  
FROM: Bill Blanton, ESAT ETM, Region VI  
SUBJECT: RCRA Data Review

Attached is the data review summary for Project # 309-R0603601  
SDG # P1443  
Site Merichem

COMMENTS:

1. This data package is technically provisional.
2. Less than the method-specified sample volumes were used for two TCLP-BNA samples which resulted in quantitation limits above the TCLP regulatory levels for two or three target analytes.
3. The analysis for the VOA trip blank exceeded the technical holding time limit.
4. One VOA compound had high recoveries in the MS/MSD analyses.
5. Pyridine was not recovered in the BNA MS/MSD samples and had a low recovery in the BNA LCS analysis.
6. The laboratory did not report the spiking levels and the %recoveries for the VOA and BNA LCS analytes.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
HOUSTON BRANCH  
10625 FALLSTONE ROAD  
HOUSTON, TEXAS 77099

ORGANIC REGIONAL DATA ASSESSMENT

|             |                          |                       |                             |
|-------------|--------------------------|-----------------------|-----------------------------|
| PROJECT NO. | <u>309-R0603601</u>      | SITE                  | <u>Merichem</u>             |
| LABORATORY  | <u>NDRC</u>              | NO. OF SAMPLES        | <u>3</u>                    |
| CONTRACT#   | <u>RCRA/PRC</u>          | MATRIX                | <u>Water (TCLP Extract)</u> |
| SDG#        | <u>P1443</u>             | REVIEWER (IF NOT ESD) | <u>ESAT</u>                 |
| SOW#        | <u>SW-846, 8240/8270</u> | REVIEWER'S NAME       | <u>Gene Zhu</u>             |
| ACCT#       | <u>N/A</u>               | SF#                   | <u>N/A</u>                  |
|             |                          | COMPLETION DATE       | <u>April 26, 1993</u>       |

| <u>Station No</u> | <u>Sample Locations</u> | <u>Sample ID</u> |
|-------------------|-------------------------|------------------|
| <u>3</u>          | <u>SL-2</u>             | <u>1443-1</u>    |
| <u>3</u>          | <u>TB-1</u>             | <u>1443-2</u>    |
| <u>3</u>          | <u>FB-1</u>             | <u>1443-3</u>    |

DATA ASSESSMENT SUMMARY

|                                 | <u>TCLP-VOA</u> | <u>TCLP-BNA</u> | <u>Pest/PCB</u> | <u>Other</u> |
|---------------------------------|-----------------|-----------------|-----------------|--------------|
| 1. HOLDING TIMES                | <u>M</u>        | <u>O</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 2. GC/MS TUNE/INSTR. PERFORM.   | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 3. CALIBRATIONS                 | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 4. TCLP EXT./METHOD BLANKS      | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 5. SURROGATES                   | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 6. MATRIX SPIKE/DUP             | <u>M</u>        | <u>M</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 7. LAB CONTROL SAMPLES (LCS)    | <u>X</u>        | <u>M</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 8. INTERNAL STANDARDS           | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 9. COMPOUND IDENTITY/QUANTITATN | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 10. SYSTEM PERFORMANCE          | <u>O</u>        | <u>O</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 11. OVERALL ASSESSMENT          | <u>M</u>        | <u>M</u>        | <u>N/A</u>      | <u>N/A</u>   |

O = Data had no problems/or qualified due to minor problems.

M = Data qualified due to major problems.

Z = Data unacceptable.

X = Problems, but do not affect data.

NA = Not applicable.

**ACTION ITEMS:** Less than the method-specified sample volumes were used for two TCLP-BNA samples resulting in quantitation limits above the TCLP regulatory levels for two or three target analytes. The laboratory did not report the spiked amount for the VOA and BNA LCS analytes.

**AREA OF CONCERN:** The analysis for the VOA trip blank exceeded the technical holding time limit. One compound had high recoveries in VOA MS/MSD analyses. Pyridine was not recovered in the BNA MS/MSD samples and had a low recovery in the BNA LCS analysis.

**COMMENTS/CLARIFICATIONS  
REGION 6 CLP QA REVIEW**

PROJECT: 309-R0603601 SDG: P1443 SITE: Merichem LAB: NDRC

The following is a summary of sample qualifiers used by Region 6 in reporting this RCRA data:

| <u>No.</u> | <u>Acceptable</u> | <u>Provisional</u> | <u>Unacceptable</u> |
|------------|-------------------|--------------------|---------------------|
| TCLP-VOA   | <u>1</u>          | <u>2</u>           | <u></u>             |
| TCLP-BNA   | <u></u>           | <u>2</u>           | <u></u>             |
| Pest/PCB   | <u>N/A</u>        | <u></u>            | <u></u>             |
| OTHER      | <u>N/A</u>        | <u></u>            | <u></u>             |

COMMENTS: This RCRA case consisted of three water samples for VOA and/or BNA analyses. According to the EPA Chain of Custody (COC) Records: sample 1443-2 was a trip blank for TCLP-VOA analysis only; and sample 1443-1 and the field blank, sample 1443-3, were for TCLP-VOA and TCLP-BNA analyses.

The laboratory performed TCLP extractions and analyzed the extracts following EPA methods 8240 and 8270 for VOA and BNA analyses, respectively. Results were reported for the TCLP regulatory analytes only. This review report focused only on the technical usability of the submitted sample data because the Statement of Work document for this project was not available.

The analysis for the VOA trip blank exceeded the technical holding time limit. The 2-butanone had high recoveries in the VOA MS/MSD analyses. Pyridine was not recovered in BNA samples 1443-1MS/MSD and had a low recovery in the BNA LCS analysis. The laboratory did not report the spiking levels and the %recoveries for the VOA and BNA LCS analytes. The quantitation limits exceeded the TCLP regulatory levels for up to three target analytes in two BNA samples due to decreased sample size. No positive hits were reported above the raised quantitation limits for these three analytes. Other TCLP target compounds were not reported above the TCLP regulatory levels in the samples.

Data are provisional for two TCLP-VOA and two TCLP-BNA samples due to deficiencies in technical holding time and MS/MSD and LCS performance. No evidence audit was conducted for the Complete Sample Delivery Group File (CSF).

1. Holding Times - Provisional. All samples met technical holding time criteria (40 CFR Parts 136 and 302) except for the VOA trip blank, sample 1443-2. This trip blank was collected two days before other field samples were collected. Results are estimated for benzene and chlorobenzene in VOA sample 1443-2 because the analysis exceeded the technical holding time limit by one day.

ORGANIC QA REVIEW  
CONTINUATION PAGE

PROJECT: 309-R0603601 SDG: P1443 SITE: Merichem LAB: NDRC

2. **Tuning/Performance - Acceptable.** BFB and DFTPP analyses met GC/MS tuning criteria. One internal standard (IS6) had low recoveries in BNA samples 1443-1MS/MSD. Since the IS6 area met QC criteria in the unspiked sample, no data were qualified. Internal standard areas met QC criteria for the other BNA and all VOA samples.

3. **Calibrations - Acceptable.** All TCLP target compounds met the method-specified calibration criteria except the BNA compound, hexachlorobutadiene. The laboratory failed to take the method-required corrective action after the %D for hexachlorobutadiene exceeded QC criteria. However, sample data were not affected by this deficiency because the compound was not detected in the associated samples.

4. **Blanks - Acceptable.** All VOA daily instrument blanks and the BNA extraction method blank met QC requirements. TCLP target compound 2-butanone was detected >CRQL, but <5X CRQL, in the VOA TCLP extraction method blank. In this reviewer's opinion, positive 2-butanone results in VOA samples 1443-1 and 1443-3 should be qualified as undetected (U) due to possible TCLP extraction contamination. The laboratory failed to analyze a method-required TCLP method blank for the BNA fraction. Since no TCLP target compounds were detected in the samples, sample data were not affected by this omission.

5. **Surrogates - Acceptable.** One surrogate recovery in BNA sample 1443-1MS marginally exceeded the upper QC limit (94%), but sample data were not affected. The surrogate recoveries met QC requirements for other BNA and all VOA samples.

6. **Matrix Spike/Matrix Spike Duplicates - Provisional.** The VOA compound, 2-butanone, had high MS/MSD recoveries in VOA samples 1443-1MS/MSD. Result is estimated for 2-butanone in sample 1443-1 due to possible high bias. Pyridine was not recovered in BNA samples 1443-1MS/MSD. In this reviewer's opinion, the quantitation limits are unusable and false negatives are possible for pyridine in all samples. Other VOA and BNA matrix spike compounds met QC requirements for accuracy and precision.

7. **Laboratory Control Samples (LCS) - Provisional.** The laboratory did not report the %recoveries and the spiking levels for both the VOA and BNA LCS analyses. All VOA LCS %recoveries exceeded the QC limits if they were calculated based on the method-specified spiking amounts and the reported concentrations for the LCS analysis. All positive results should be used with caution pending laboratory clarification. According to the reviewer's calculation, pyridine had a low recovery in the BNA LCS analysis based on the method-specified spiking amount.

ORGANIC QA REVIEW  
CONTINUATION PAGE

PROJECT: 309-R0603601 SDG: P1443 SITE: Merichem LAB: NDRC

7. Laboratory Control Samples (LCS) - (continued) Since pyridine results in the samples have already been qualified unusable under Section 6 of this report, no further action was taken. The reviewer verified that the %recoveries for other BNA LCS analytes generally met QC criteria.

8a. Compound Identity - Acceptable. The quantitation limits exceeded the TCLP regulatory levels for the following TCLP target compounds because less than the method-specified sample volumes were used for these samples:

hexachlorobutadiene in BNA sample 1443-1, and

2,4-dinitrotoluene and hexachlorobenzene in BNA samples 1443-1 and 1443-3.

These analytes were not detected above the elevated quantitation limits. Other TCLP target compounds were not detected above the TCLP regulatory levels.

All sample spectra met QC criteria for compound identification. Results for pyridine and 1,4-dichlorobenzene in all BNA samples were "B" flagged for no apparent reason and the "B" flags should be ignored.

8b. Data Completeness - Provisional. The data package was complete but with some deficiencies and omissions. A list containing all needed corrections and resubmissions is attached to this report.

9. Case Assessment - Data are acceptable for VOA sample 1443-3.

TCLP-VOA: Samples 1443-1 and 1443-2 are provisional due to deficiencies in technical holding time and MS/MSD performance.

TCLP-BNA: Samples 1443-1 and 1443-3 are provisional due to deficiencies in MS/MSD and LCS performances.

In Reference to: RCRA  
Project No: 309-R0603601  
SDG No: P1443

In reference to data for the following fractions:

TCLP-VOA

TCLP-BNA

**Summary of Questions/Issues:**

**A. TCLP-VOA:**

1. The quantitation ions were omitted for all analytes in all calibration standards except one daily calibration on 2/18/93. Please resubmit the affected quant reports to include this information.
2. The reported ion abundance criteria on Form 5A's did not agree with the method-specified criteria for ions 50, 174, 175, and 176. Please report correct criteria in the future.
3. According to the TCLP Extraction Sheet, TCLP extraction was not performed for sample 1443-2. Please explain.

**B. TCLP-BNA:**

1. The reported ion abundance criteria on Form 5A's did not agree with the method-specified criteria for ions 51, 127, 365, 442, and 443. Please report correct criteria in the future.
2. Please explain why a TCLP method blank was omitted.
3. It would appear that 3-methylphenol and 4-methylphenol coeluted because the same peak was reported for both isomers. Since the spectra for these two isomers are the same, it was technically impossible to correctly identify them under this circumstance, even by using different quantitation ions. Please comment on the validity of the reported results for these two apparently co-eluting isomers.
4. The reviewer was unable to reproduce the reported surrogate recoveries. Please provide the following information:
  - a) the amount of surrogate, in  $\mu\text{g}$ , spiked into each sample
  - b) the final extract volume:  
1mL - by the continuous liquid-liquid extraction method; or  
1mL+1mL - by the separatory funnel extraction method.

|   |
|---|
| <p>In Reference to: RCRA<br/>Project No: 309-R0603601<br/>SDG No: P1443</p> |
|---|

**Summary of Questions/Issues: (continued)**

**B. TCLP-BNA: (continued)**

5. The CCC compound, hexachlorobutadiene, failed the method-specified QC criteria for the daily calibration dated 2/15/93. Please explain why no corrective action was taken before proceeding with the sample analyses.
6. The reported QC limits were not the method-specified ones for surrogates nitrobenzene-d5, 2-fluorobiphenyl, phenol-d5, and 2-fluorophenol. Please explain.
7. Please explain why results were "B" flagged for 1,4-dichlorobenzene and pyridine on Form I's for all samples when these compounds were not reported in the blank.
8. Please indicate whether or not the TCLP solvent was used for the LCS analysis.
9. Please explain why less than the method-specified sample volumes were used for samples 1443-1, 1443-3, and 1443-1MS/MSD, which resulted in the quantitation limits for hexachlorobutadiene, 2,4-dinitrotoluene, and hexachlorobenzene above the TCLP regulatory levels.

**C. Both TCLP-VOA and TCLP-BNA:**

1. Form III: Please explain the source for the QC limits of MS/MSD %recoveries.
2. LCS: The %recoveries and the actual spiking concentrations were omitted for the LCS spiking compounds. Please submit forms reporting this information and results.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
HOUSTON BRANCH  
10625 FALLSTONE RD.  
HOUSTON, TEXAS 77099

Site Merichem

Case# 309-R0603601

SDG# P1443

Date: 4-28-1993

Subject: CLP Data Review

From: Dr Melvin Ritter , ESAT DPO , Region VI

To : B. Heineman , 6H-CX , Region VI

*Melvin Ritter*

A review of the laboratory raw data for the reference site has been completed by members of the Laboratory Section.  
Samples were:

|            |               |       |       |       |
|------------|---------------|-------|-------|-------|
| INORGANIC: | _____         | _____ | _____ | _____ |
|            | _____         | _____ | _____ | _____ |
|            | _____         | _____ | _____ | _____ |
|            | _____         | _____ | _____ | _____ |
|            | _____         | _____ | _____ | _____ |
| ORGANIC:   | <u>1443-1</u> | _____ | _____ | _____ |
|            | <u>1443-2</u> | _____ | _____ | _____ |
|            | <u>1443-3</u> | _____ | _____ | _____ |
|            | _____         | _____ | _____ | _____ |
|            | _____         | _____ | _____ | _____ |

The data was found:

( ) Acceptable

0-1007

(X) Provisional; use of data  
noted in Review Summary.

Problems are

( ) Unacceptable; data should not be used. Problems are noted  
in Review Summary.

Questions regarding the review can be addressed to me.

Attachments

cc: Mahmoud El-Feky, 6E-HO  
Mike Hiatt, EMSL/Las Vegas  
Regional TPO  
Mitzie Dovel, Mantech ENV, VA



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
HOUSTON BRANCH  
10625 FALLSTONE RD.  
HOUSTON, TEXAS 77099

**MEMORANDUM**

Date: 4-28-1993

Subject: CLP Data Review

From: Mahmoud El-Feky, Data Coordinator, Region VI

To: Dr. Melvin Ritter, ESAT DPO, Region VI

Attached is the data review summary for Site Merichem  
Case # 309-R0603601  
SDG # P1443

Data was found: ( ) Acceptable  
(X) Provisional  
( ) Unacceptable

Action required by TPO: ( ) Yes  
(X) No

**COMMENTS:**

- 1- Less than the method-specified sample volume used for two TCLP-BNA samples which resulted in quantitation limits above the TCLP regulatory levels for two or three target analytes.
- 2- Analysis for VOA trip blank exceeded the technical holding time limit.
- 3- VOA compound had high recoveries in the MS/MSD analyses.
- 4- Pyridine was not recovered in the BNA MS/MSD samples and had a low recovery in the BNA LCS analysis.
- 5- The laboratory did not report the spiking levels and % recoveries for the VOA and BNA LCS analytes.



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ESAT REGION VI  
c/o U.S. ENVIRONMENTAL PROTECTION AGENCY  
10625 FALLSTONE ROAD  
HOUSTON, TX 77099

MEMORANDUM

DATE: April 26, 1993  
TO: Dr. Melvin Bitter, RPO, US EPA, Region VI  
FROM: *Bill Blanton*  
Bill Blanton, ESAT ETM, Region VI  
SUBJECT: RCRA Data Review

Attached is the data review summary for Project # 309-R0603601  
SDG # P1443  
Site Merichem

COMMENTS:

1. This data package is technically provisional.
2. Less than the method-specified sample volumes were used for two TCLP-BNA samples which resulted in quantitation limits above the TCLP regulatory levels for two or three target analytes.
3. The analysis for the VOA trip blank exceeded the technical holding time limit.
4. One VOA compound had high recoveries in the MS/MSD analyses.
5. Pyridine was not recovered in the BNA MS/MSD samples and had a low recovery in the BNA LCS analysis.
6. The laboratory did not report the spiking levels and the %recoveries for the VOA and BNA LCS analytes.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
HOUSTON BRANCH  
10625 FALLSTONE ROAD  
HOUSTON, TEXAS 77099

ORGANIC REGIONAL DATA ASSESSMENT

PROJECT NO. 309-R0603601 SITE Merichem  
LABORATORY NDRC NO. OF SAMPLES 3  
CONTRACT# RCRA/PRC MATRIX Water (TCLP Extract)  
SDG# P1443 REVIEWER (IF NOT ESD) ESAT  
SOW# SW-846, 8240/8270 REVIEWER'S NAME Gene Zhu  
ACCT# N/A SF# N/A COMPLETION DATE April 26, 1993

| <u>Station No</u> | <u>Sample Locations</u> | <u>Sample ID</u> |
|-------------------|-------------------------|------------------|
| <u>3</u>          | <u>SL-2</u>             | <u>1443-1</u>    |
| <u>3</u>          | <u>TB-1</u>             | <u>1443-2</u>    |
| <u>3</u>          | <u>FB-1</u>             | <u>1443-3</u>    |

DATA ASSESSMENT SUMMARY

|                                 | <u>TCLP-VOA</u> | <u>TCLP-BNA</u> | <u>Pest/PCB</u> | <u>Other</u> |
|---------------------------------|-----------------|-----------------|-----------------|--------------|
| 1. HOLDING TIMES                | <u>M</u>        | <u>O</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 2. GC/MS TUNE/INSTR. PERFORM.   | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 3. CALIBRATIONS                 | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 4. TCLP EXT./METHOD BLANKS      | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 5. SURROGATES                   | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 6. MATRIX SPIKE/DUP             | <u>M</u>        | <u>M</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 7. LAB CONTROL SAMPLES (LCS)    | <u>X</u>        | <u>M</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 8. INTERNAL STANDARDS           | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 9. COMPOUND IDENTITY/QUANTITATN | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 10. SYSTEM PERFORMANCE          | <u>O</u>        | <u>O</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 11. OVERALL ASSESSMENT          | <u>M</u>        | <u>M</u>        | <u>N/A</u>      | <u>N/A</u>   |

O = Data had no problems/or qualified due to minor problems.

M = Data qualified due to major problems.

Z = Data unacceptable.

X = Problems, but do not affect data.

NA = Not applicable.

ACTION ITEMS: Less than the method-specified sample volumes were used for two TCLP-BNA samples resulting in quantitation limits above the TCLP regulatory levels for two or three target analytes. The laboratory did not report the spiked amount for the VOA and BNA LCS analytes.

AREA OF CONCERN: The analysis for the VOA trip blank exceeded the technical holding time limit. One compound had high recoveries in VOA MS/MSD analyses. Pyridine was not recovered in the BNA MS/MSD samples and had a low recovery in the BNA LCS analysis.

COMMENTS/CLARIFICATIONS  
REGION 6 CLP QA REVIEW

PROJECT: 309-R0603601 SDG: P1443 SITE: Merichem LAB: NDRC

The following is a summary of sample qualifiers used by Region 6 in reporting this RCRA data:

| <u>No.</u> | <u>Acceptable</u> | <u>Provisional</u> | <u>Unacceptable</u> |
|------------|-------------------|--------------------|---------------------|
| TCLP-VOA   | <u>1</u>          | <u>2</u>           | <u></u>             |
| TCLP-BNA   | <u></u>           | <u>2</u>           | <u></u>             |
| Pest/PCB   | <u>N/A</u>        | <u></u>            | <u></u>             |
| OTHER      | <u>N/A</u>        | <u></u>            | <u></u>             |

COMMENTS: This RCRA case consisted of three water samples for VOA and/or BNA analyses. According to the EPA Chain of Custody (COC) Records: sample 1443-2 was a trip blank for TCLP-VOA analysis only; and sample 1443-1 and the field blank, sample 1443-3, were for TCLP-VOA and TCLP-BNA analyses.

The laboratory performed TCLP extractions and analyzed the extracts following EPA methods 8240 and 8270 for VOA and BNA analyses, respectively. Results were reported for the TCLP regulatory analytes only. This review report focused only on the technical usability of the submitted sample data because the Statement of Work document for this project was not available.

The analysis for the VOA trip blank exceeded the technical holding time limit. The 2-butanone had high recoveries in the VOA MS/MSD analyses. Pyridine was not recovered in BNA samples 1443-1MS/MSD and had a low recovery in the BNA LCS analysis. The laboratory did not report the spiking levels and the recoveries for the VOA and BNA LCS analytes. The quantitation limits exceeded the TCLP regulatory levels for up to three target analytes in two BNA samples due to decreased sample size. No positive hits were reported above the raised quantitation limits for these three analytes. Other TCLP target compounds were not reported above the TCLP regulatory levels in the samples.

Data are provisional for two TCLP-VOA and two TCLP-BNA samples due to deficiencies in technical holding time and MS/MSD and LCS performance. No evidence audit was conducted for the Complete Sample Delivery Group File (CSF).

1. Holding Times - Provisional. All samples met technical holding time criteria (40 CFR Parts 136 and 302) except for the VOA trip blank, sample 1443-2. This trip blank was collected two days before other field samples were collected. Results are estimated for benzene and chlorobenzene in VOA sample 1443-2 because the analysis exceeded the technical holding time limit by one day.

ORGANIC QA REVIEW  
CONTINUATION PAGE

PROJECT: 309-R0603601 SDG: P1443 SITE: Merichem LAB: NDRC

2. Tuning/Performance - Acceptable. BFB and DFTPP analyses met GC/MS tuning criteria. One internal standard (IS6) had low recoveries in BNA samples 1443-1MS/MSD. Since the IS6 area met QC criteria in the unspiked sample, no data were qualified. Internal standard areas met QC criteria for the other BNA and all VOA samples.

3. Calibrations - Acceptable. All TCLP target compounds met the method-specified calibration criteria except the BNA compound, hexachlorobutadiene. The laboratory failed to take the method-required corrective action after the %D for hexachlorobutadiene exceeded QC criteria. However, sample data were not affected by this deficiency because the compound was not detected in the associated samples.

4. Blanks - Acceptable. All VOA daily instrument blanks and the BNA extraction method blank met QC requirements. TCLP target compound 2-butanone was detected >CRQL, but <5X CRQL, in the VOA TCLP extraction method blank. In this reviewer's opinion, positive 2-butanone results in VOA samples 1443-1 and 1443-3 should be qualified as undetected (U) due to possible TCLP extraction contamination. The laboratory failed to analyze a method-required TCLP method blank for the BNA fraction. Since no TCLP target compounds were detected in the samples, sample data were not affected by this omission.

5. Surrogates - Acceptable. One surrogate recovery in BNA sample 1443-1MS marginally exceeded the upper QC limit (94%), but sample data were not affected. The surrogate recoveries met QC requirements for other BNA and all VOA samples.

6. Matrix Spike/Matrix Spike Duplicates - Provisional. The VOA compound, 2-butanone, had high MS/MSD recoveries in VOA samples 1443-1MS/MSD. Result is estimated for 2-butanone in sample 1443-1 due to possible high bias. Pyridine was not recovered in BNA samples 1443-1MS/MSD. In this reviewer's opinion, the quantitation limits are unusable and false negatives are possible for pyridine in all samples. Other VOA and BNA matrix spike compounds met QC requirements for accuracy and precision.

7. Laboratory Control Samples (LCS) - Provisional. The laboratory did not report the %recoveries and the spiking levels for both the VOA and BNA LCS analyses. All VOA LCS %recoveries exceeded the QC limits if they were calculated based on the method-specified spiking amounts and the reported concentrations for the LCS analysis. All positive results should be used with caution pending laboratory clarification. According to the reviewer's calculation, pyridine had a low recovery in the BNA LCS analysis based on the method-specified spiking amount.

**ORGANIC QA REVIEW  
CONTINUATION PAGE**

**PROJECT:** 309-R0603601 **SDG:** P1443 **SITE:** Merichem **LAB:** NDRC

**7. Laboratory Control Samples (LCS) - (continued)** Since pyridine results in the samples have already been qualified unusable under Section 6 of this report, no further action was taken. The reviewer verified that the recoveries for other BNA LCS analytes generally met QC criteria.

**8a. Compound Identity - Acceptable.** The quantitation limits exceeded the TCLP regulatory levels for the following TCLP target compounds because less than the method-specified sample volumes were used for these samples:

hexachlorobutadiene in BNA sample 1443-1, and

2,4-dinitrotoluene and hexachlorobenzene in BNA samples 1443-1 and 1443-3.

These analytes were not detected above the elevated quantitation limits. Other TCLP target compounds were not detected above the TCLP regulatory levels.

All sample spectra met QC criteria for compound identification. Results for pyridine and 1,4-dichlorobenzene in all BNA samples were "B" flagged for no apparent reason and the "B" flags should be ignored.

**8b. Data Completeness - Provisional.** The data package was complete but with some deficiencies and omissions. A list containing all needed corrections and resubmissions is attached to this report.

**9. Case Assessment - Data are acceptable for VOA sample 1443-3.**

**TCLP-VOA:** Samples 1443-1 and 1443-2 are provisional due to deficiencies in technical holding time and MS/MSD performance.

**TCLP-BNA:** Samples 1443-1 and 1443-3 are provisional due to deficiencies in MS/MSD and LCS performances.

In Reference to: RCRA  
Project No: 309-R0603601  
SDG No: P1443

In reference to data for the following fractions:

TCLP-VOA

TCLP-BNA

**Summary of Questions/Issues:**

**A. TCLP-VOA:**

1. The quantitation ions were omitted for all analytes in all calibration standards except one daily calibration on 2/18/93. Please resubmit the affected quant reports to include this information.
2. The reported ion abundance criteria on Form 5A's did not agree with the method-specified criteria for ions 50, 174, 175, and 176. Please report correct criteria in the future.
3. According to the TCLP Extraction Sheet, TCLP extraction was not performed for sample 1443-2. Please explain.

**B. TCLP-BNA:**

1. The reported ion abundance criteria on Form 5A's did not agree with the method-specified criteria for ions 51, 127, 365, 442, and 443. Please report correct criteria in the future.
2. Please explain why a TCLP method blank was omitted.
3. It would appear that 3-methylphenol and 4-methylphenol coeluted because the same peak was reported for both isomers. Since the spectra for these two isomers are the same, it was technically impossible to correctly identify them under this circumstance, even by using different quantitation ions. Please comment on the validity of the reported results for these two apparently co-eluting isomers.
4. The reviewer was unable to reproduce the reported surrogate recoveries. Please provide the following information:
  - a) the amount of surrogate, in  $\mu\text{g}$ , spiked into each sample
  - b) the final extract volume:  
1mL - by the continuous liquid-liquid extraction method; or  
1mL+1mL - by the separatory funnel extraction method.

In Reference to: RCRA  
Project No: 309-R0603601  
SDG No: P1443

**Summary of Questions/Issues: (continued)**

**B. TCLP-BNA: (continued)**

5. The CCC compound, hexachlorobutadiene, failed the method-specified QC criteria for the daily calibration dated 2/15/93. Please explain why no corrective action was taken before proceeding with the sample analyses.
6. The reported QC limits were not the method-specified ones for surrogates nitrobenzene-d5, 2-fluorobiphenyl, phenol-d5, and 2-fluorophenol. Please explain.
7. Please explain why results were "B" flagged for 1,4-dichlorobenzene and pyridine on Form I's for all samples when these compounds were not reported in the blank.
8. Please indicate whether or not the TCLP solvent was used for the LCS analysis.
9. Please explain why less than the method-specified sample volumes were used for samples 1443-1, 1443-3, and 1443-1MS/MSD, which resulted in the quantitation limits for hexachlorobutadiene, 2,4-dinitrotoluene, and hexachlorobenzene above the TCLP regulatory levels.

**C. Both TCLP-VOA and TCLP-BNA:**

1. Form III: Please explain the source for the QC limits of MS/MSD %recoveries.
2. LCS: The %recoveries and the actual spiking concentrations were omitted for the LCS spiking compounds. Please submit forms reporting this information and results.

PEER REVIEW FORM  
ESAT ZONE 2  
ENVIRONMENTAL SERVICES ASSISTANCE TEAMS

REGION 6 WORK TEAM  
INTERNAL REVIEW OF  
ESAT - 6 - \_\_\_\_\_

Current Date 4/22/93 Due Date 4/7/93

TID No. 6A - 9303 - 231 TID Description RCRA Organic data review

Document Index Code(s) \_\_\_\_\_

Document Subject/Title Data Review Report for RCRA Project 309-R0603601

Document File Name(s) & Location RCRA-P14.43 Room 136

Author(s) Gene Zhu

EPA Task Monitor Mahmoud El-Feky

Review Schedule

| Reviewer     | Review Type* | S | When Needed | Date Review Completed | Reviewer's Initials |
|--------------|--------------|---|-------------|-----------------------|---------------------|
| Terry Fan    | full         |   | 4/22/93     | 4-22-93               | JZ                  |
| Bill Blanton | full         |   | 4/22/93     | 4-27-93               | BB                  |
|              |              |   |             |                       |                     |

\* Full, Format, Technical, or Other: \_\_\_\_\_

Comments (Please initial) \_\_\_\_\_

\_\_\_\_\_  
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*Draft.*

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
HOUSTON BRANCH  
10625 FALLSTONE ROAD  
HOUSTON, TEXAS 77099

ORGANIC REGIONAL DATA ASSESSMENT

PROJECT NO. 309-R0603601 SITE Merichem  
LABORATORY NDRC NO. OF SAMPLES 3  
CONTRACT# RCRA/PRC MATRIX Water (TCLP Extract)  
SDG# P1443 REVIEWER (IF NOT ESD) ESAT  
SOW# SW-846, 8240/8270 REVIEWER'S NAME Gene Zhu  
ACCT# N/A SF# N/A COMPLETION DATE April 22, 1993

| <u>Station No</u> | <u>Sample Locations</u> | <u>Sample ID</u> |
|-------------------|-------------------------|------------------|
| <u>3</u>          | <u>SL-2</u>             | <u>1443-1</u>    |
| <u>3</u>          | <u>TB-1</u>             | <u>1443-2</u>    |
| <u>3</u>          | <u>FB-1</u>             | <u>1443-3</u>    |

DATA ASSESSMENT SUMMARY

|                                 | <u>TCLP-VOA</u> | <u>TCLP-BNA</u> | <u>Pest/PCB</u> | <u>Other</u> |
|---------------------------------|-----------------|-----------------|-----------------|--------------|
| 1. HOLDING TIMES                | <u>M</u>        | <u>O</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 2. GC/MS TUNE/INSTR. PERFORM.   | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 3. CALIBRATIONS                 | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 4. TCLP EXT./METHOD BLANKS      | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 5. SURROGATES                   | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 6. MATRIX SPIKE/DUP             | <u>M</u>        | <u>M</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 7. LAB CONTROL SAMPLES (LCS)    | <u>X</u>        | <u>M</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 8. INTERNAL STANDARDS           | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 9. COMPOUND IDENTITY/QUANTITATN | <u>O</u>        | <u>OX</u>       | <u>N/A</u>      | <u>N/A</u>   |
| 10. SYSTEM PERFORMANCE          | <u>O</u>        | <u>O</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 11. OVERALL ASSESSMENT          | <u>M</u>        | <u>M</u>        | <u>N/A</u>      | <u>N/A</u>   |

O = Data had no problems/or qualified due to minor problems.

M = Data qualified due to major problems.

Z = Data unacceptable.

X = Problems, but do not affect data.

NA = Not applicable.

ACTION ITEMS: Less than <sup>the</sup> method-specified sample volumes were used for two TCLP-BNA samples and <sup>which</sup> resulted in quantitation limits exceeding the TCLP regulatory levels for two or three target analytes in these two samples. ~~The 2-butanone was detected >CRL in the VOA TCLP extraction method blank.~~ The laboratory did not report the spiked amount for the LCS analytes.

AREA OF CONCERN: The analysis for VOA trip blank exceeded the technical holding time limit. One <sup>set</sup> compound had high recoveries in VOA MS/MSD analyses. Pyridine was not recovered in the BNA MS/MSD samples and ~~was recovered low~~ in the BNA LCS analysis.

*Had a low recovery*

MANTECH ENVIRONMENTAL TECHNOLOGY, INC.  
ESAT REGION VI  
c/o U.S. ENVIRONMENTAL PROTECTION AGENCY  
10625 FALLSTONE ROAD  
HOUSTON, TX 77099

MEMORANDUM

DATE: April 22, 1993  
TO: Dr. Melvin Ritter, Chemist, US EPA, Region VI  
FROM: Bill Blanton, ESAT ETM, Region VI  
SUBJECT: RCRA Data Review

Attached is the data review summary for Project # 309-R0603601  
SDG # P1443  
Site Merichem

COMMENTS:

1. This data package is technically provisional.
2. Less than <sup>the</sup> method-specified <sup>volume</sup> sample volumes were used for two TCLP-BNA samples and resulted in quantitation limits exceeding the TCLP regulatory levels for two or three target analytes in these two samples.
3. The analysis for <sup>the</sup> VOA trip blank exceeded the technical holding time limit.
4. One <sup>VOA</sup> compound had high recoveries in <sup>the</sup> VOA MS/MSD analyses.
5. Pyridine was not recovered in the BNA MS/MSD samples and ~~was~~ <sup>had</sup> a low recovered ~~low~~ in the BNA LCS analysis.
6. The laboratory did not reported <sup>spiking levels and the % recovery</sup> the spiked amount for the VOA ~~and BNA~~ LCS <sup>analyses</sup> ~~analyses~~.
7. ( The 2-butanone was detected >CRQL in the VOA TCLP extraction )  
method blank. 5X CRQL ? delete.

**COMMENTS/CLARIFICATIONS  
REGION 6 CLP QA REVIEW**

**PROJECT:** 309-R0603601 **SDG:** P1443 **SITE:** Merichem **LAB:** NDRC

The following is a summary of sample qualifiers used by Region 6 in reporting this RCRA data:

| <u>No.</u> | <u>Acceptable</u> | <u>Provisional</u> | <u>Unacceptable</u> |
|------------|-------------------|--------------------|---------------------|
| TCLP-VOA   | <u>1</u>          | <u>2</u>           | <u>          </u>   |
| TCLP-BNA   | <u>          </u> | <u>2</u>           | <u>          </u>   |
| Pest/PCB   | <u>N/A</u>        | <u>          </u>  | <u>          </u>   |
| OTHER      | <u>N/A</u>        | <u>          </u>  | <u>          </u>   |

*for TCLP VOA and/or BNA analyses.*  
COMMENTS: This RCRA case consisted of ~~organic data~~ for three water samples. According to the EPA Chain of Custody (COC) Records: sample 1443-2 was a trip blank for TCLP-VOA analysis only; and sample 1443-1 and field blank, 1443-3, were for ~~both~~ TCLP-VOA and TCLP-BNA analyses. *the sample*

*Sample 1443-3 was a field blank.*  
The laboratory performed TCLP extractions and analyzed the extracts following the ~~EPA method~~ 8240 and 8270 for ~~TCLP~~ VOA and ~~TCLP~~ BNA analyses, respectively. Results were reported for the TCLP regulatory analytes only. ~~For QC areas,~~ this review report focused only on the technical usability of the submitted sample data because the Statement of Work document for ~~these analyses~~ *this project.* was not available.

*the*  
The analysis for ~~VOA~~ trip blank exceeded the technical holding time limit. The 2-butanone had high recoveries in VOA MS/MSD analyses. Pyridine was not recovered in BNA samples 1443-1MS/MSD and ~~was recovered low~~ in the BNA LCS analysis. The laboratory did not ~~report~~ the spiked amount for the ~~LCS analytes~~. The *reported* quantitation limits were elevated above the TCLP regulatory levels for three target analytes in two BNA samples. *decreased sample size.* The 2-butanone was ~~detected~~ *not detected* in the VOA TCLP extraction method blank. No target compounds were detected above the TCLP ~~regulatory levels~~ for the VOA and BNA samples. *except for the analytes for which the elevated detection limit was reported*

*See (B)*  
Data are provisional for two TCLP-VOA and two TCLP-BNA samples due to deficiencies in technical holding time and MS/MSD and LCS performance. No evidence audit was conducted for the Complete Sample Delivery Group File (CSF).

1. Holding Times - Provisional. All samples met technical *the* holding time criteria (40 CFR Parts 136 and 302) except for VOA trip blank, sample 1443-2. This trip blank was collected two days before other field samples *and did not go through TCLP extraction, according to the laboratory TCLP extraction log.* Since this trip blank was analyzed one day past the technical holding time limit, in this reviewer's opinion, results are estimated for benzene and chlorobenzene in this VOA trip blank 1443-2 *because the analyte exceeded the technical holding time limit by 1 day.*

ORGANIC QA REVIEW  
CONTINUATION PAGE

PROJECT: 309-R0603601 SDG: P1443 SITE: Merichem LAB: NDRC

2. Tuning/Performance - Acceptable. BFB and DFTPP analyses met GC/MS tuning criteria. One internal standard (IS6) was recovered low in BNA samples 1443-1MS/MSD. Since <sup>the</sup> IS6 area was recovered <sup>met QC criteria</sup> within the QC limits in the unspiked sample, BNA sample 1443-1, sample <sup>2nd</sup> data were not qualified. Internal standard areas met QC criteria for other BNA and all VOA samples.

3. Calibrations - Acceptable. All TCLP target compounds met <sup>the method specified</sup> technical calibration criteria, except for a BNA compound, hexachlorobutadiene. The laboratory failed to take <sup>the</sup> any method-required corrective action after the %D for hexachlorobutadiene exceeded calibration QC criteria. Sample data, however, were not affected by this deficiency because the compound was not detected in the associated samples.

4. Blanks - Acceptable. All VOA daily instrument <sup>blanks</sup> and BNA extraction method blanks met ~~technical~~ QC requirements. TCLP target compound 2-butanone was detected >CROL <sup>in the VOA TCLP extraction method blank</sup>. In this reviewer's <sup>was > 5x QC RL</sup> opinion, positive 2-butanone results in VOA samples 1443-1 and 1443-3 should be qualified as undetected (U) due to possible TCLP extraction contamination. The laboratory failed to analyze a method-required TCLP method blank for the BNA fraction. Since no TCLP target compounds were detected in the samples, sample data were not affected by this omission.

5. Surrogates - Acceptable. One surrogate recovery in BNA sample 1443-1MS marginally exceeded the upper QC limit (94%), but sample data were not affected. The surrogate recoveries met QC requirements for other BNA and all VOA samples.

6. Matrix Spike/Matrix Spike Duplicates - Provisional. The VOA compound, 2-butanone, had high MS/MSD recoveries in VOA samples 1443-1MS/MSD. <sup>Results</sup> are estimated for 2-butanone in sample 1443-1 due to possible high bias. Pyridine was not recovered at all in BNA samples 1443-1MS/MSD. In this reviewer's opinion, the quantitation limits are unusable <sup>and false results are possible</sup> for pyridine in all samples ~~because the compound was unlikely to be detected in the samples by the acid TCLP extraction method.~~ Other VOA and BNA matrix spike compounds met QC requirements for accuracy and precision.

7. Laboratory Control Samples (LCS) - Provisional. (The reviewer <sup>sa</sup> was unable to verify the recoveries for all VOA LCS analytes because the laboratory did not report <sup>spike amount</sup> the spiked amount for the LCS analytes and the recovered concentrations <sup>were much higher</sup> were much higher than the method-specified ones. In this reviewer's opinion, all positive results should be used with caution for the VOA samples. A resubmission was requested for additional information from the laboratory.)

ORGANIC QA REVIEW  
CONTINUATION PAGE

PROJECT: 309-R0603601 SDG: P1443 SITE: Merichem LAB: NDRC

7. Laboratory Control Samples (LCS) - (continued) Pyridine had a low recovery in the BNA LCS analysis. Since <sup>sample</sup>pyridine results have already been qualified <sup>unusable</sup>under Section 6 of this report, no further action was taken. The recoveries for other BNA LCS analytes met QC criteria.

8a. Compound Identity - Acceptable. (No TCLP target compounds were detected above the regulatory levels in the samples.) ~~delete~~. However, <sup>exceeded</sup>the quantitation limits were elevated above the TCLP regulatory levels for the following TCLP target compounds because less than <sup>specified</sup>method-required sample volumes were used for these samples: ~~the~~

hexachlorobutadiene in BNA sample 1443-1, and

2,4-dinitrotoluene and hexachlorobenzene in BNA samples 1443-1 and 1443-3.

*Other TCLP target compounds were not detected above the regulatory levels.*  
All sample spectra met QC criteria for compound identification. Results were "B" flagged for no apparent reason and should be ignored for pyridine and 1,4-dichlorobenzene in all BNA samples.

8b. Data Completeness - Acceptable. The data package was complete but with some deficiencies and omissions. A list containing all needed corrections and resubmissions is attached to this report.

*contradictory.*

9. Case Assessment - Data are acceptable for one VOA sample.

<sup>1443-3.</sup>

TCLP-VOA: Samples 1443-1 and 1443-2 are provisional due to deficiencies in technical holding time and MS/MSD performance.

TCLP-BNA: Samples 1443-1 and 1443-3 are provisional due to deficiencies in MS/MSD and LCS performances.

*These analytes were not detected above the ~~the~~ elevated quantitation limits.*

MEMORANDUM

To: Dr. Melvin Ritter                      From: W. E. Blanton  
Subject: Project 309-R0603601              Date: April 22, 1993  
          RCRA SDG# P1443  
          Laboratory Resubmissions  
Copies: M. El Feky                          Ref: MEM  
          File                                      O-1007

Attached is a list of issues needing clarification and items needing corrections and omissions for RCRA Project 309-R0603601, SDG P1443. The samples in this episode were analyzed by:

NDRC Laboratories  
1089 East Collins Blvd.  
Richardson, TX 75081

These laboratory resubmissions are necessary to enable the Environmental Protection Agency to maximize the usability of the laboratory results in this data package.

Please forward the attached lists to the RCRA User for this case, Bryan Heinman, at (214) 655-8318, for proper actions.

In Reference to: RCRA  
Project No: 309-R0603601  
SDG No: P1443

In reference to data for the following fractions:

TCLP-VOA

TCLP-BNA

Summary of Questions/Issues:

A. TCLP-VOA:

1. The quantitation ions were omitted for all analytes in all calibration standards except one daily calibration on 2/18/93. Please resubmit the quant report to include this information. *affected*
2. The reported ion abundance criteria on Form 5A's did not agree with the method-specified criteria for ions 50, 174, 175, and 176. Please report correct criteria in the future.
3. *According to the* As indicated on TCLP Extraction Sheet, *TeP extraction was not performed for* sample 1443-2, ~~was not extracted for TCLP extraction.~~ Please explain.

B. TCLP-BNA:

1. The reported ion abundance criteria on Form 5A's did not agree with the method-specified criteria for ions 51, 127, 365, 442, and 443. Please report correct criteria in the future.
2. *Please explain why* A TCLP method blank was omitted. ~~Please explain.~~
3. *7-4* It appeared that compound 3-methylphenol ~~was~~ coeluted with 4-methylphenol because they have the same retention time. According to the EPA method 8270, primary ion 107 should be used for both compound quantitations. Please explain the validation of using primary and secondary quantitation ions for these coeluting compounds.
4. The CCC compound, hexachlorobutadiene, failed the method-specified QC criteria ~~for~~ the daily calibration *date* 2/15/93. Please explain why no corrective action was taken before proceeding *with* the sample analyses.
5. *See c)* According to the reviewer's calculation, the surrogate concentrations were only one half of the method-specified concentrations. Please indicate how much ng of surrogate per sample was added. Also, please indicate whether the final extract volume is 1mL, or 1mL+1mL?

In Reference to: RCRA  
Project No: 309-R0603601  
SDG No: P1443

Summary of Questions/Issues: (continued)

B. TCLP-BNA: (continued)

6. The reported QC limits were not the method-specified for surrogates nitrobenzene-d5, 2-fluorobiphenyl, phenol-d5, and 2-fluorophenol. Please explain.
7. The lowest initial calibration standard was 20 ng/ $\mu$ L for 2,4,5-trichlorophenol and pentachlorophenol, like those standards for other analytes. Please explain why the quantitation limits were raised for these two target compounds in all samples.
8. Samples 1443-1MS/MSD: If no reason for raising the quantitation limits for pentachlorophenol, results for the compound should not be "J" flagged. If this is the case, please revise Form I's.
9. Please explain why results were "B" flagged for 1,4-dichlorobenzene and pyridine on Form I's for all samples.
10. Please indicate if LCS <sup>analytes</sup> had gone through the TCLP extraction.
11. Please explain why less than method-required sample volumes were used for samples 1443-1, 1443-3, and 1443-1MS/MSD, which resulted in the quantitation limits for hexachlorobutadiene, 2,4-dinitrotoluene, and hexachlorobenzene <sup>exceeding</sup> higher than the TCLP regulatory levels.

C. Both TCLP-VOA and TCLP-BNA:

1. Form III: Please explain <sup>the source for the</sup> where those QC limits <sup>of the</sup> for MS/MSD recoveries ~~come from~~.
2. LCS: The method <sup>ing</sup> specified that the spiked concentration <sup>are 20  $\mu$ g/L and 100  $\mu$ g/L</sup> for VOA ~~LCS analytes is 20  $\mu$ g/L~~ and for BNA LCS analytes <sup>respectively</sup> is ~~100  $\mu$ g/L~~ (Sec. 8.5.2 in both EPA methods 8240 and 8270). <sup>For</sup> For this data package, only Form I's were submitted for the LCS analyses. Please explain what the spiked amount and the recovery were for each LCS analyte.) <sup>See CD)</sup>

RCRA 309-R0603601

- A. The laboratory did not report %recoveries and the spiking levels for the VOA LCS analysis. If calculated based on the method-specified spiking amounts and the laboratory reported concentrations for the LCS analysis, the VOA LCS %recoveries exceeded the QC limits. All positive VOA results should be used with caution pending laboratory clarification.
- B. No positive hits were reported above the raised quantitation limits for these three analytes. Other TCLP target analytes were not reported above the regulatory levels in the samples.
- C. The reviewer was unable to reproduce the reported surrogate recoveries. Please provide the following information:
  - a) the amount of surrogate (in ug) spiked into each sample
  - b) the final extract volume:
    - 1ml - by the continuous liquid-liquid extraction method; or
    - 1ml+1ml - by the separatory funnel extraction method.
- D. LCS: The %recoveries and the actual spiking concentrations were omitted for the LCS spiking compounds. Please submit a Form III reporting these information and results.

MANTECH ENVIRONMENTAL TECHNOLOGY, INC.  
ESAT REGION VI  
c/o U.S. ENVIRONMENTAL PROTECTION AGENCY  
10625 FALLSTONE ROAD  
HOUSTON, TX 77099

MEMORANDUM

DATE: April 26, 1993  
TO: Dr. Melvin Ritter, RPO, US EPA, Region VI  
FROM: *Bill Blanton*  
Bill Blanton, ESAT ETM, Region VI  
SUBJECT: RCRA Data Review

Attached is the data review summary for Project # 309-R0603601  
SDG # P1443  
Site Merichem

COMMENTS:

1. This data package is technically provisional.
2. Less than the method-specified sample volumes were used for two TCLP-BNA samples which resulted in quantitation limits above the TCLP regulatory levels for two or three target analytes.
3. The analysis for the VOA trip blank exceeded the technical holding time limit.
4. One VOA compound had high recoveries in the MS/MSD analyses.
5. Pyridine was not recovered in the BNA MS/MSD samples and had a low recovery in the BNA LCS analysis.
6. The laboratory did not report the spiking levels and the %recoveries for the VOA and BNA LCS analytes.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
HOUSTON BRANCH  
10625 FALLSTONE ROAD  
HOUSTON, TEXAS 77099

ORGANIC REGIONAL DATA ASSESSMENT

PROJECT NO. 309-R0603601 SITE Merichem  
LABORATORY NDRC NO. OF SAMPLES 3  
CONTRACT# RCRA/PRC MATRIX Water (TCLP Extract)  
SDG# P1443 REVIEWER (IF NOT ESD) ESAT  
SOW# SW-846, 8240/8270 REVIEWER'S NAME Gene Zhu  
ACCT# N/A SF# N/A COMPLETION DATE April 26, 1993

| <u>Station No</u> | <u>Sample Locations</u> | <u>Sample ID</u> |
|-------------------|-------------------------|------------------|
| <u>3</u>          | <u>SL-2</u>             | <u>1443-1</u>    |
| <u>3</u>          | <u>TB-1</u>             | <u>1443-2</u>    |
| <u>3</u>          | <u>FB-1</u>             | <u>1443-3</u>    |

DATA ASSESSMENT SUMMARY

|                                 | <u>TCLP-VOA</u> | <u>TCLP-BNA</u> | <u>Pest/PCB</u> | <u>Other</u> |
|---------------------------------|-----------------|-----------------|-----------------|--------------|
| 1. HOLDING TIMES                | <u>M</u>        | <u>O</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 2. GC/MS TUNE/INSTR. PERFORM.   | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 3. CALIBRATIONS                 | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 4. TCLP EXT./METHOD BLANKS      | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 5. SURROGATES                   | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 6. MATRIX SPIKE/DUP             | <u>M</u>        | <u>M</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 7. LAB CONTROL SAMPLES (LCS)    | <u>X</u>        | <u>M</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 8. INTERNAL STANDARDS           | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 9. COMPOUND IDENTITY/QUANTITATN | <u>O</u>        | <u>X</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 10. SYSTEM PERFORMANCE          | <u>O</u>        | <u>O</u>        | <u>N/A</u>      | <u>N/A</u>   |
| 11. OVERALL ASSESSMENT          | <u>M</u>        | <u>M</u>        | <u>N/A</u>      | <u>N/A</u>   |

O = Data had no problems/or qualified due to minor problems.

M = Data qualified due to major problems.

Z = Data unacceptable.

X = Problems, but do not affect data.

NA = Not applicable.

**ACTION ITEMS:** Less than the method-specified sample volumes were used for two TCLP-BNA samples resulting in quantitation limits above the TCLP regulatory levels for two or three target analytes. The laboratory did not report the spiked amount for the VOA and BNA LCS analytes.

**AREA OF CONCERN:** The analysis for the VOA trip blank exceeded the technical holding time limit. One compound had high recoveries in VOA MS/MSD analyses. Pyridine was not recovered in the BNA MS/MSD samples and had a low recovery in the BNA LCS analysis.

**COMMENTS/CLARIFICATIONS  
REGION 6 CLP QA REVIEW**

**PROJECT:** 309-R0603601 **SDG:** P1443 **SITE:** Merichem **LAB:** NDRC

The following is a summary of sample qualifiers used by Region 6 in reporting this RCRA data:

| <u>No.</u> | <u>Acceptable</u> | <u>Provisional</u> | <u>Unacceptable</u> |
|------------|-------------------|--------------------|---------------------|
| TCLP-VOA   | <u>1</u>          | <u>2</u>           | <u></u>             |
| TCLP-BNA   | <u></u>           | <u>2</u>           | <u></u>             |
| Pest/PCB   | <u>N/A</u>        | <u></u>            | <u></u>             |
| OTHER      | <u>N/A</u>        | <u></u>            | <u></u>             |

**COMMENTS:** This RCRA case consisted of three water samples for VOA and/or BNA analyses. According to the EPA Chain of Custody (COC) Records: sample 1443-2 was a trip blank for TCLP-VOA analysis only; and sample 1443-1 and the field blank, sample 1443-3, were for TCLP-VOA and TCLP-BNA analyses.

The laboratory performed TCLP extractions and analyzed the extracts following EPA methods 8240 and 8270 for VOA and BNA analyses, respectively. Results were reported for the TCLP regulatory analytes only. This review report focused only on the technical usability of the submitted sample data because the Statement of Work document for this project was not available.

The analysis for the VOA trip blank exceeded the technical holding time limit. The 2-butanone had high recoveries in the VOA MS/MSD analyses. Pyridine was not recovered in BNA samples 1443-1MS/MSD and had a low recovery in the BNA LCS analysis. The laboratory did not report the spiking levels and the %recoveries for the VOA and BNA LCS analytes. The quantitation limits exceeded the TCLP regulatory levels for up to three target analytes in two BNA samples due to decreased sample size. No positive hits were reported above the raised quantitation limits for these three analytes. Other TCLP target compounds were not reported above the TCLP regulatory levels in the samples.

Data are provisional for two TCLP-VOA and two TCLP-BNA samples due to deficiencies in technical holding time and MS/MSD and LCS performance. No evidence audit was conducted for the Complete Sample Delivery Group File (CSF).

1. **Holding Times - Provisional.** All samples met technical holding time criteria (40 CFR Parts 136 and 302) except for the VOA trip blank, sample 1443-2. This trip blank was collected two days before other field samples were collected. Results are estimated for benzene and chlorobenzene in VOA sample 1443-2 because the analysis exceeded the technical holding time limit by one day.

**ORGANIC QA REVIEW  
CONTINUATION PAGE**

**PROJECT:** 309-R0603601 **SDG:** P1443 **SITE:** Merichem **LAB:** NDRC

**2. Tuning/Performance - Acceptable.** BFB and DFTPP analyses met GC/MS tuning criteria. One internal standard (IS6) had low recoveries in BNA samples 1443-1MS/MSD. Since the IS6 area met QC criteria in the unspiked sample, no data were qualified. Internal standard areas met QC criteria for the other BNA and all VOA samples.

**3. Calibrations - Acceptable.** All TCLP target compounds met the method-specified calibration criteria except the BNA compound, hexachlorobutadiene. The laboratory failed to take the method-required corrective action after the %D for hexachlorobutadiene exceeded QC criteria. However, sample data were not affected by this deficiency because the compound was not detected in the associated samples.

**4. Blanks - Acceptable.** All VOA daily instrument blanks and the BNA extraction method blank met QC requirements. TCLP target compound 2-butanone was detected >CRQL, but <5X CRQL, in the VOA TCLP extraction method blank. In this reviewer's opinion, positive 2-butanone results in VOA samples 1443-1 and 1443-3 should be qualified as undetected (U) due to possible TCLP extraction contamination. The laboratory failed to analyze a method-required TCLP method blank for the BNA fraction. Since no TCLP target compounds were detected in the samples, sample data were not affected by this omission.

**5. Surrogates - Acceptable.** One surrogate recovery in BNA sample 1443-1MS marginally exceeded the upper QC limit (94%), but sample data were not affected. The surrogate recoveries met QC requirements for other BNA and all VOA samples.

**6. Matrix Spike/Matrix Spike Duplicates - Provisional.** The VOA compound, 2-butanone, had high MS/MSD recoveries in VOA samples 1443-1MS/MSD. Result is estimated for 2-butanone in sample 1443-1 due to possible high bias. Pyridine was not recovered in BNA samples 1443-1MS/MSD. In this reviewer's opinion, the quantitation limits are unusable and false negatives are possible for pyridine in all samples. Other VOA and BNA matrix spike compounds met QC requirements for accuracy and precision.

**7. Laboratory Control Samples (LCS) - Provisional.** The laboratory did not report the %recoveries and the spiking levels for both the VOA and BNA LCS analyses. All VOA LCS %recoveries exceeded the QC limits if they were calculated based on the method-specified spiking amounts and the reported concentrations for the LCS analysis. All positive results should be used with caution pending laboratory clarification. According to the reviewer's calculation, pyridine had a low recovery in the BNA LCS analysis based on the method-specified spiking amount.

ORGANIC QA REVIEW  
CONTINUATION PAGE

PROJECT: 309-R0603601 SDG: P1443 SITE: Merichem LAB: NDRC

7. Laboratory Control Samples (LCS) - (continued) Since pyridine results in the samples have already been qualified unusable under Section 6 of this report, no further action was taken. The reviewer verified that the recoveries for other BNA LCS analytes generally met QC criteria.

8a. Compound Identity - Acceptable. The quantitation limits exceeded the TCLP regulatory levels for the following TCLP target compounds because less than the method-specified sample volumes were used for these samples:

hexachlorobutadiene in BNA sample 1443-1, and

2,4-dinitrotoluene and hexachlorobenzene in BNA samples 1443-1 and 1443-3.

These analytes were not detected above the elevated quantitation limits. Other TCLP target compounds were not detected above the TCLP regulatory levels.

All sample spectra met QC criteria for compound identification. Results for pyridine and 1,4-dichlorobenzene in all BNA samples were "B" flagged for no apparent reason and the "B" flags should be ignored.

8b. Data Completeness - Provisional. The data package was complete but with some deficiencies and omissions. A list containing all needed corrections and resubmissions is attached to this report.

9. Case Assessment - Data are acceptable for VOA sample 1443-3.

TCLP-VOA: Samples 1443-1 and 1443-2 are provisional due to deficiencies in technical holding time and MS/MSD performance.

TCLP-BNA: Samples 1443-1 and 1443-3 are provisional due to deficiencies in MS/MSD and LCS performances.

|   |
|---|
| <p>In Reference to: RCRA<br/>Project No: 309-R0603601<br/>SDG No: P1443</p> |
|---|

In reference to data for the following fractions:

TCLP-VOA

TCLP-BNA

**Summary of Questions/Issues:**

**A. TCLP-VOA:**

1. The quantitation ions were omitted for all analytes in all calibration standards except one daily calibration on 2/18/93. Please resubmit the affected quant reports to include this information.
2. The reported ion abundance criteria on Form 5A's did not agree with the method-specified criteria for ions 50, 174, 175, and 176. Please report correct criteria in the future.
3. According to the TCLP Extraction Sheet, TCLP extraction was not performed for sample 1443-2. Please explain.

**B. TCLP-BNA:**

1. The reported ion abundance criteria on Form 5A's did not agree with the method-specified criteria for ions 51, 127, 365, 442, and 443. Please report correct criteria in the future.
2. Please explain why a TCLP method blank was omitted.
3. It would appear that 3-methylphenol and 4-methylphenol coeluted because the same peak was reported for both isomers. Since the spectra for these two isomers are the same, it was technically impossible to correctly identify them under this circumstance, even by using different quantitation ions. Please comment on the validity of the reported results for these two apparently co-eluting isomers.
4. The reviewer was unable to reproduce the reported surrogate recoveries. Please provide the following information:
  - a) the amount of surrogate, in  $\mu\text{g}$ , spiked into each sample
  - b) the final extract volume:  
1mL - by the continuous liquid-liquid extraction method; or  
1mL+1mL - by the separatory funnel extraction method.

|   |
|---|
| <p>In Reference to: RCRA<br/>Project No: 309-R0603601<br/>SDG No: P1443</p> |
|---|

**Summary of Questions/Issues: (continued)**

**B. TCLP-BNA: (continued)**

5. The CCC compound, hexachlorobutadiene, failed the method-specified QC criteria for the daily calibration dated 2/15/93. Please explain why no corrective action was taken before proceeding with the sample analyses.
6. The reported QC limits were not the method-specified ones for surrogates nitrobenzene-d5, 2-fluorobiphenyl, phenol-d5, and 2-fluorophenol. Please explain.
7. Please explain why results were "B" flagged for 1,4-dichlorobenzene and pyridine on Form I's for all samples when these compounds were not reported in the blank.
8. Please indicate whether or not the TCLP solvent was used for the LCS analysis.
9. Please explain why less than the method-specified sample volumes were used for samples 1443-1, 1443-3, and 1443-1MS/MSD, which resulted in the quantitation limits for hexachlorobutadiene, 2,4-dinitrotoluene, and hexachlorobenzene above the TCLP regulatory levels.

**C. Both TCLP-VOA and TCLP-BNA:**

1. Form III: Please explain the source for the QC limits of MS/MSD %recoveries.
2. LCS: The %recoveries and the actual spiking concentrations were omitted for the LCS spiking compounds. Please submit forms reporting this information and results.

# MEMORANDUM

**To: Dr. Melvin Ritter**

**Subject: RCRA Project 309-R0603601**  
**SDG# P1443**  
**Laboratory Resubmissions**

**From:** W. E. Blanton  
**Date:** April 26, 1993

Ref: MEM532  
O-1007

Attached is a list of issues needing clarification and items needing corrections and omissions for RCRA Project 309-R0603601, SDG P1443. The samples in this episode were analyzed by:

**NDRC Laboratories**  
**1089 East Collins Blvd.**  
**Richardson, TX 75081**

These laboratory resubmissions are necessary to enable the Environmental Protection Agency to maximize the usability of the laboratory results in this data package.

**Please forward the attached lists to the RCRA User for this case, Bryon Heineman, (214) 655-8318, for proper actions.**

Site: Merichem

SL-2MS SL-2MXD

[illegible]

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1443-1

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER / Lab Sample ID: 1443-1

Sample wt/vol: 5.00 / (g/ml) ML Lab File ID: AS496

Level: (low/med) LOW Date Received: 2/06/93 ✓

% Moisture: not dec. Date Analyzed: 2/19/93 ✓

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 0 (uL) Soil Aliquot Volume: 0 (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L / Q

|               |                      |     |     |
|---------------|----------------------|-----|-----|
| 75-01-4-----  | Vinyl Chloride       | 10. | U   |
| 75-35-4-----  | 1,1-Dichloroethene   | 10. | U   |
| 67-66-3-----  | Chloroform           | 10. | U   |
| 107-06-2----- | 1,2-Dichloroethane   | 10. | U   |
| 78-93-3-----  | 2-Butanone           | 2.  | J / |
| 56-23-5-----  | Carbon Tetrachloride | 10. | U   |
| 79-01-6-----  | Trichloroethene      | 10. | U   |
| 71-43-2-----  | Benzene              | 5.  | J / |
| 127-18-4----- | Tetrachloroethene    | 10. | U   |
| 108-90-7----- | Chlorobenzene        | 4.  | J / |

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1443-2

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER

Lab Sample ID: 1443-2

Sample wt/vol: 5.00 (g/ml) ML

Lab File ID: BR928

Level: (low/med) LOW /

Date Received: 2/06/93 ✓

% Moisture: not dec.

Date Analyzed: 2/18/93 ✓

GC Column: DB-624 / ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: 0 (uL)

Soil Aliquot Volume: 0 (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L / Q

|               |                      |     |   |
|---------------|----------------------|-----|---|
| 75-01-4-----  | Vinyl Chloride       | 10. | U |
| 75-35-4-----  | 1,1-Dichloroethene   | 10. | U |
| 67-66-3-----  | Chloroform           | 10. | U |
| 107-06-2----- | 1,2-Dichloroethane   | 10. | U |
| 78-93-3-----  | 2-Butanone           | 10. | U |
| 56-23-5-----  | Carbon Tetrachloride | 10. | U |
| 79-01-6-----  | Trichloroethene      | 10. | U |
| 71-43-2-----  | Benzene              | 10. | U |
| 127-18-4----- | Tetrachloroethene    | 10. | U |
| 108-90-7----- | Chlorobenzene        | 10. | U |

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1443-3

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER Lab Sample ID: 1443-3

Sample wt/vol: 5.00 / (g/ml) ML Lab File ID: BR929

Level: (low/med) LOW Date Received: 2/06/93 ✓

% Moisture: not dec. Date Analyzed: 2/18/93 ✓

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 0 / (uL) Soil Aliquot Volume: 0 (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L ✓ Q

|               |                      |     |   |
|---------------|----------------------|-----|---|
| 75-01-4-----  | Vinyl Chloride       | 10. | U |
| 75-35-4-----  | 1,1-Dichloroethene   | 10. | U |
| 67-66-3-----  | Chloroform           | 10. | U |
| 107-06-2----- | 1,2-Dichloroethane   | 10. | U |
| 78-93-3-----  | 2-Butanone           | 5.  | J |
| 56-23-5-----  | Carbon Tetrachloride | 10. | U |
| 79-01-6-----  | Trichloroethene      | 10. | U |
| 71-43-2-----  | Benzene              | 10. | U |
| 127-18-4----- | Tetrachloroethene    | 10. | U |
| 108-90-7----- | Chlorobenzene        | 10. | U |

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1443-1MS

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER Lab Sample ID: 1443-1MS

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: AS494

Level: (low/med) LOW Date Received: 2/06/93

% Moisture: not dec. Date Analyzed: 2/19/93

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 0 (uL) Soil Aliquot Volume: 0 (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L Q

|               |                      |     |  |
|---------------|----------------------|-----|--|
| 75-01-4-----  | Vinyl Chloride       | 50  |  |
| 75-35-4-----  | 1,1-Dichloroethene   | 40. |  |
| 67-66-3-----  | Chloroform           | 50. |  |
| 107-06-2----- | 1,2-Dichloroethane   | 59. |  |
| 78-93-3-----  | 2-Butanone           | 85  |  |
| 56-23-5-----  | Carbon Tetrachloride | 53. |  |
| 79-01-6-----  | Trichloroethene      | 53. |  |
| 71-43-2-----  | Benzene              | 63. |  |
| 127-18-4----- | Tetrachloroethene    | 52. |  |
| 108-90-7----- | Chlorobenzene        | 58  |  |

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1443-1MSD

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER Lab Sample ID: 1443-1MSD

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: AS500

Level: (low/med) LOW Date Received: 2/06/93

% Moisture: not dec. Date Analyzed: 2/19/93

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 0 (uL) Soil Aliquot Volume: 0 (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L Q

|               |                      |     |  |
|---------------|----------------------|-----|--|
| 75-01-4-----  | Vinyl Chloride       | 45. |  |
| 75-35-4-----  | 1,1-Dichloroethene   | 42. |  |
| 67-66-3-----  | Chloroform           | 46. |  |
| 107-06-2----- | 1,2-Dichloroethane   | 52. |  |
| 78-93-3-----  | 2-Butanone           | 140 |  |
| 56-23-5-----  | Carbon Tetrachloride | 47. |  |
| 79-01-6-----  | Trichloroethene      | 46. |  |
| 71-43-2-----  | Benzene              | 56. |  |
| 127-18-4----- | Tetrachloroethene    | 45. |  |
| 108-90-7----- | Chlorobenzene        | 51. |  |

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VLCS

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER

Lab Sample ID: VOA LCS

Sample wt/vol: 5.00 / (g/ml) ML

Lab File ID: AS469

Level: (low/med) LOW

Date Received: / /

% Moisture: not dec.

Date Analyzed: 2/18/93 ✓

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: 0 / (uL)

Soil Aliquot Volume: 0 (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L / Q

|               |                      |       |  |
|---------------|----------------------|-------|--|
| 75-01-4-----  | Vinyl Chloride       | 46. ✓ |  |
| 75-35-4-----  | 1,1-Dichloroethene   | 44.   |  |
| 67-66-3-----  | Chloroform           | 51.   |  |
| 107-06-2----- | 1,2-Dichloroethane   | 53. ✓ |  |
| 78-93-3-----  | 2-Butanone           | 33. ✓ |  |
| 56-23-5-----  | Carbon Tetrachloride | 50.   |  |
| 79-01-6-----  | Trichloroethene      | 50.   |  |
| 71-43-2-----  | Benzene              | 51.   |  |
| 127-18-4----- | Tetrachloroethene    | 48.   |  |
| 108-90-7----- | Chlorobenzene        | 51. ✓ |  |

2 Rec if 50  
92  
88  
102  
106  
66  
100  
100  
102  
96  
102

How much  
Added/spiked?

50 ?

Form 3 LCS ?

## WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name:NDRC LABORATORIES, INC.

Contract:0

Lab Code:0

Case No.:

SAS No.:

SDG No.:P1443

Matrix Spike - EPA Sample No.: 1443-1

| COMPOUND             | SPIKE<br>ADDED<br>(ug/L) | SAMPLE<br>CONCENTRATION<br>(ug/L) | MS<br>CONCENTRATION<br>(ug/L) | MS<br>%<br>REC # | QC.<br>LIMITS<br>REC. |
|----------------------|--------------------------|-----------------------------------|-------------------------------|------------------|-----------------------|
| Vinyl Chloride       | 50.                      | 0.                                | 50.                           | 100              | 61-125                |
| 1,1-Dichloroethene   | 50.                      | 0.                                | 40.                           | 80               | 61-125                |
| Chloroform           | 50.                      | 0.                                | 50.                           | 100              | 70-125                |
| 1,2-Dichloroethane   | 50.                      | 0.                                | 59.                           | 118              | 61-125                |
| 2-Butanone           | 50.                      | 2.                                | 85.                           | 166              | 70-125                |
| Carbon Tetrachloride | 50.                      | 0.                                | 53.                           | 106              | 70-125                |
| Trichloroethene      | 50.                      | 0.                                | 53.                           | 106              | 70-125                |
| Benzene              | 50.                      | 5.                                | 63.                           | 116              | 70-125                |
| Tetrachloroethene    | 50.                      | 0.                                | 52.                           | 104              | 70-125                |
| Chlorobenzene        | 50.                      | 4.                                | 58.                           | 108              | 70-125                |

D-251  
D-234  
51-138  
49-155  
70-140  
71-157  
37-151  
64-148  
37-160

| COMPOUND             | SPIKE<br>ADDED<br>(ug/L) | MSD<br>CONCENTRATION<br>(ug/L) | MSD<br>%<br>REC # | %<br>RPD # | QC LIMITS<br>RPD REC. |
|----------------------|--------------------------|--------------------------------|-------------------|------------|-----------------------|
| Vinyl Chloride       | 50.                      | 45.                            | 90                | 11         | 15 61-125             |
| 1,1-Dichloroethene   | 50.                      | 42.                            | 84                | 5          | 15 61-125             |
| Chloroform           | 50.                      | 46.                            | 92                | 8          | 15 70-125             |
| 1,2-Dichloroethane   | 50.                      | 52.                            | 104               | 13         | 15 61-125             |
| 2-Butanone           | 50.                      | 140.                           | 276*              | 50*        | 15 70-125             |
| Carbon Tetrachloride | 50.                      | 47.                            | 94                | 12         | 15 70-125             |
| Trichloroethene      | 50.                      | 46.                            | 92                | 14         | 15 70-125             |
| Benzene              | 50.                      | 56.                            | 102               | 13         | 15 70-125             |
| Tetrachloroethene    | 50.                      | 45.                            | 90                | 14         | 15 70-125             |
| Chlorobenzene        | 50.                      | 51.                            | 94                | 14         | 15 70-125             |

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

RPD: 1 out of 10 outside limits

Spike Recovery: 2 out of 20 outside limits

COMMENTS:

2A  
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: NDRC LABORATORIES, INC.      Contract: 0  
Lab Code: 0      Case No.:      SAS No.:      SDG No.: P1443

|    | EPA<br>SAMPLE NO. | SMC1<br>(TOL) # | SMC2<br>(BFB) # | SMC3<br>(DCE) # | OTHER | TOT<br>OUT |
|----|-------------------|-----------------|-----------------|-----------------|-------|------------|
|    | =====             | =====           | =====           | =====           | ===== | =====      |
| 01 | 1443-1            | 102             | 106             | 106             |       | 0          |
| 02 | 1443-1MS          | 100             | 106             | 112             |       | 0          |
| 03 | 1443-1MSD         | 100             | 104             | 112             |       | 0          |
| 04 | 1443-2            | 106             | 92              | 114             |       | 0          |
| 05 | 1443-3            | 102             | 96              | 96              |       | 0          |
| 06 | TCLPBLK           | 102             | 96              | 94              |       | 0          |
| 07 | VBLKA             | 104             | 98              | 96              |       | 0          |
| 08 | VBLKB             | 100             | 100             | 94              |       | 0          |
| 09 | VBLKC             | 100             | 100             | 100             |       | 0          |
| 10 | VLCS              | 98              | 100             | 104             |       | 0          |
| 11 |                   |                 |                 |                 |       |            |
| 12 |                   |                 |                 |                 |       |            |
| 13 |                   |                 |                 |                 |       |            |
| 14 |                   |                 |                 |                 |       |            |
| 15 |                   |                 |                 |                 |       |            |
| 16 |                   |                 |                 |                 |       |            |
| 17 |                   |                 |                 |                 |       |            |
| 18 |                   |                 |                 |                 |       |            |
| 19 |                   |                 |                 |                 |       |            |
| 20 |                   |                 |                 |                 |       |            |
| 21 |                   |                 |                 |                 |       |            |
| 22 |                   |                 |                 |                 |       |            |
| 23 |                   |                 |                 |                 |       |            |
| 24 |                   |                 |                 |                 |       |            |
| 25 |                   |                 |                 |                 |       |            |
| 26 |                   |                 |                 |                 |       |            |
| 27 |                   |                 |                 |                 |       |            |
| 28 |                   |                 |                 |                 |       |            |
| 29 |                   |                 |                 |                 |       |            |
| 30 |                   |                 |                 |                 |       |            |

QC LIMITS

SMC1 (TOL) = Toluene-d8 (88-110)  
SMC2 (BFB) = Bromofluorobenzene (86-115)  
SMC3 (DCE) = 1,2-Dichloroethane-d4 (76-114)

# Column to be used to flag recovery values

\* Values outside of contract required QC limits

D System Monitoring Compound diluted out

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TCLPBLK

Lab Name: NDRC LABORATORIES, INC.      Contract: 0

Lab Code: 0      Case No.:      SAS No.:      SDG No.: P1443

Matrix: (soil/water) WATER      Lab Sample ID: TCLP BLANK

Sample wt/vol: 5.00 (g/ml) ML      Lab File ID: BR934

Level: (low/med) LOW      Date Received: 2/06/93

% Moisture: not dec.      Date Analyzed: 2/17/93 ✓

GC Column: DB-624 / ID: 0.53 (mm)      Dilution Factor: 1.0

Soil Extract Volume: 0 (uL)      Soil Aliquot Volume: 0 (uL)

CAS NO.      COMPOUND      CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L / Q

|               |                      |     |   |
|---------------|----------------------|-----|---|
| 75-01-4-----  | Vinyl Chloride       | 10. | U |
| 75-35-4-----  | 1,1-Dichloroethene   | 10. | U |
| 67-66-3-----  | Chloroform           | 10. | U |
| 107-06-2----- | 1,2-Dichloroethane   | 10. | U |
| 78-93-3-----  | 2-Butanone           | 64. | U |
| 56-23-5-----  | Carbon Tetrachloride | 10. | U |
| 79-01-6-----  | Trichloroethene      | 10. | U |
| 71-43-2-----  | Benzene              | 10. | U |
| 127-18-4----- | Tetrachloroethene    | 10. | U |
| 108-90-7----- | Chlorobenzene        | 10. | U |

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKA

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER Lab Sample ID: VOA BLANK

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: BR917

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. Date Analyzed: 2/17/93

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 0 (uL) Soil Aliquot Volume: 0 (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L Q

|               |                      |     |   |
|---------------|----------------------|-----|---|
| 75-01-4-----  | Vinyl Chloride       | 10. | U |
| 75-35-4-----  | 1,1-Dichloroethene   | 10. | U |
| 67-66-3-----  | Chloroform           | 10. | U |
| 107-06-2----- | 1,2-Dichloroethane   | 10. | U |
| 78-93-3-----  | 2-Butanone           | 10. | U |
| 56-23-5-----  | Carbon Tetrachloride | 10. | U |
| 79-01-6-----  | Trichloroethene      | 10. | U |
| 71-43-2-----  | Benzene              | 10. | U |
| 127-18-4----- | Tetrachloroethene    | 10. | U |
| 108-90-7----- | Chlorobenzene        | 10. | U |

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKB

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER Lab Sample ID: VOA BLANK

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: AS467

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. Date Analyzed: 2/18/93 ✓

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 0 (uL) Soil Aliquot Volume: 0 (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L / Q

|               |                      |     |   |
|---------------|----------------------|-----|---|
| 75-01-4-----  | Vinyl Chloride       | 10. | U |
| 75-35-4-----  | 1,1-Dichloroethene   | 10. | U |
| 67-66-3-----  | Chloroform           | 10. | U |
| 107-06-2----- | 1,2-Dichloroethane   | 10. | U |
| 78-93-3-----  | 2-Butanone           | 10. | U |
| 56-23-5-----  | Carbon Tetrachloride | 10. | U |
| 79-01-6-----  | Trichloroethene      | 10. | U |
| 71-43-2-----  | Benzene              | 10. | U |
| 127-18-4----- | Tetrachloroethene    | 10. | U |
| 108-90-7----- | Chlorobenzene        | 10. | U |

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKC

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER Lab Sample ID: VOA BLANK

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: AS488

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. Date Analyzed: 2/19/93 /

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 0 (uL) Soil Aliquot Volume: 0 (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L / Q

|               |                      |     |   |
|---------------|----------------------|-----|---|
| 75-01-4-----  | Vinyl Chloride       | 10. | U |
| 75-35-4-----  | 1,1-Dichloroethene   | 10. | U |
| 67-66-3-----  | Chloroform           | 10. | U |
| 107-06-2----- | 1,2-Dichloroethane   | 10. | U |
| 78-93-3-----  | 2-Butanone           | 10. | U |
| 56-23-5-----  | Carbon Tetrachloride | 10. | U |
| 79-01-6-----  | Trichloroethene      | 10. | U |
| 71-43-2-----  | Benzene              | 10. | U |
| 127-18-4----- | Tetrachloroethene    | 10. | U |
| 108-90-7----- | Chlorobenzene        | 10. | U |

4A  
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKA

Lab Name:NDRC LABORATORIES, INC. Contract:0

Lab Code:0 Case No.: SAS No.: SDG No.:P1443

Lab File ID:BR917 Lab Sample ID:VOA BLANK

Date Analyzed: 2/17/93 Time Analyzed:1915

GC Column:DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID:VOA2

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|
|    | =====             | =====            | =====          | =====            |
| 01 | 1443-2            | 1443-2           | BR928          | 0209             |
| 02 | 1443-3            | 1443-3           | BR929          | 0243             |
| 03 | VLCS              | VOA LCS          | AS469          | 1845             |
| 04 |                   |                  |                |                  |
| 05 |                   |                  |                |                  |
| 06 |                   |                  |                |                  |
| 07 |                   |                  |                |                  |
| 08 |                   |                  |                |                  |
| 09 |                   |                  |                |                  |
| 10 |                   |                  |                |                  |
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| 22 |                   |                  |                |                  |
| 23 |                   |                  |                |                  |
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| 26 |                   |                  |                |                  |
| 27 |                   |                  |                |                  |
| 28 |                   |                  |                |                  |
| 29 |                   |                  |                |                  |
| 30 |                   |                  |                |                  |

COMMENTS:

4A  
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKB

Lab Name:NDRC LABORATORIES, INC. Contract:0

Lab Code:0 Case No.: SAS No.: SDG No.:P1443

Lab File ID:AS467 Lab Sample ID:VOA BLANK

Date Analyzed: 2/18/93 Time Analyzed:1731

GC Column:DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID:VOA1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|
|    | =====             | =====            | =====          | =====            |
| 01 | TCLPBLK           | TCLP BLANK       | BR934          | 2106             |
| 02 |                   |                  |                |                  |
| 03 |                   |                  |                |                  |
| 04 |                   |                  |                |                  |
| 05 |                   |                  |                |                  |
| 06 |                   |                  |                |                  |
| 07 |                   |                  |                |                  |
| 08 |                   |                  |                |                  |
| 09 |                   |                  |                |                  |
| 10 |                   |                  |                |                  |
| 11 |                   |                  |                |                  |
| 12 |                   |                  |                |                  |
| 13 |                   |                  |                |                  |
| 14 |                   |                  |                |                  |
| 15 |                   |                  |                |                  |
| 16 |                   |                  |                |                  |
| 17 |                   |                  |                |                  |
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| 30 |                   |                  |                |                  |

COMMENTS:

4A  
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKC

Lab Name:NDRC LABORATORIES, INC. Contract:0

Lab Code:0 Case No.: SAS No.: SDG No.:P1443

Lab File ID:AS488 Lab Sample ID:VOA BLANK

Date Analyzed: 2/19/93 Time Analyzed:0808

GC Column:DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID:VOA1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|
|    | -----             | -----            | -----          | -----            |
| 01 | 1443-1            | 1443-1           | AS496          | 1408             |
| 02 | 1443-1MS          | 1443-1MS         | AS494          | 1246             |
| 03 | 1443-1MSD         | 1443-1MSD        | AS500          | 1531             |
| 04 |                   |                  |                |                  |
| 05 |                   |                  |                |                  |
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| 28 |                   |                  |                |                  |
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| 30 |                   |                  |                |                  |

COMMENTS:

5A  
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
BROMOFLUOROBENZENE (BFB)

Lab Name: NDRC LABORATORIES, INC. Contract: 0  
Lab Code: 0 Case No.: SAS No.: SDG No.: P1443  
Lab File ID: AS345 BFB Injection Date: 2/14/93 ✓  
Instrument ID: VOA1 ✓ BFB Injection Time: 1218 ✓  
GC Column: DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) N ✓

| m/e | ION ABUNDANCE CRITERIA             | % RELATIVE ABUNDANCE |
|-----|------------------------------------|----------------------|
| 50  | 8.0% 40.0% of mass 95 ✓            | 20.5 ✓               |
| 75  | 30.0 - 66.0% of mass 95 ✓          | 51.6 ✓               |
| 95  | Base peak, 100% relative abundance | 100.0                |
| 96  | 5.0 - 9.0% of mass 95 ✓            | 7.4 ✓                |
| 173 | Less than 2.0% of mass 174         | 0.0 ( 0.0) 1         |
| 174 | 50.0 - 120.0% of mass 95 ✓         | 93.2 ✓               |
| 175 | 54.0 - 9.0% of mass 174 ✓          | 7.0 ( 7.5) 1         |
| 176 | 93.0 - 101.0% of mass 174 ✓        | 90.4 97.0 1          |
| 177 | 5.0 - 9.0% of mass 176 ✓           | 5.7 6.3 2            |

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS AND STANDARDS:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | DATE<br>ANALYZED | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|------------------|
| 01 | VSTD010           | AS349 TCLP       | AS349          | 2/14/93          | 1500             |
| 02 | VSTD020           | AS350 TCLP       | AS350          | 2/14/93          | 1534             |
| 03 | VSTD050           | AS351 TCLP       | AS351          | 2/14/93          | 1608             |
| 04 | VSTD100           | AS352 TCLP       | AS352          | 2/14/93          | 1643             |
| 05 | VSTD200           | AS353 TCLP       | AS353          | 2/14/93          | 1717             |
| 06 |                   |                  |                |                  |                  |
| 07 |                   |                  |                |                  |                  |
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| 22 |                   |                  |                |                  |                  |

5A  
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
BROMOFLUOROBENZENE (BFB)

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Lab File ID: AS486 BFB Injection Date: 2/19/93

Instrument ID: VOA1 BFB Injection Time: 0656

GC Column: DB-624 / ID: 0.53 (mm) Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA             | % RELATIVE ABUNDANCE |
|-----|------------------------------------|----------------------|
| 50  | 8.0 - 40.0% of mass 95             | 24.7                 |
| 75  | 30.0 - 66.0% of mass 95            | 54.3                 |
| 95  | Base peak, 100% relative abundance | 100.0                |
| 96  | 5.0 - 9.0% of mass 95              | 7.2                  |
| 173 | Less than 2.0% of mass 174         | 0.0 ( 0.0) 1         |
| 174 | 50.0 - 120.0% of mass 95           | 84.2                 |
| 175 | 4.0 - 9.0% of mass 174             | 6.4 ( 7.6) 1         |
| 176 | 93.0 - 101.0% of mass 174          | 82.8 ( 98.3) 1       |
| 177 | 5.0 - 9.0% of mass 176             | 5.5 ( 6.6) 2         |

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS AND STANDARDS:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | DATE<br>ANALYZED | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|------------------|
| 01 | VSTD050C          | DAILY CALIB      | AS487          | 2/19/93          | 0722             |
| 02 | VBLKC             | VOA BLANK        | AS488          | 2/19/93          | 0808             |
| 03 | 1443-1MS          | 1443-1MS         | AS494          | 2/19/93          | 1246             |
| 04 | 1443-1            | 1443-1           | AS496          | 2/19/93          | 1408             |
| 05 | 1443-1MSD         | 1443-1MSD        | AS500          | 2/19/93          | 1531             |
| 06 |                   |                  |                |                  |                  |
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5A  
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
BROMOFLUOROBENZENE (BFB)

Lab Name: NDRC LABORATORIES, INC. Contract: 0  
 Lab Code: 0 Case No.: SAS No.: SDG No.: P1443  
 Lab File ID: AS465 BFB Injection Date: 2/18/93  
 Instrument ID: VOA1 BFB Injection Time: 1636  
 GC Column: DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA             | % RELATIVE ABUNDANCE |
|-----|------------------------------------|----------------------|
| 50  | 8.0 - 40.0% of mass 95             | 23.6                 |
| 75  | 30.0 - 66.0% of mass 95            | 52.5                 |
| 95  | Base peak, 100% relative abundance | 100.0                |
| 96  | 5.0 - 9.0% of mass 95              | 7.1                  |
| 173 | Less than 2.0% of mass 174         | 0.0 ( 0.0 ) 1        |
| 174 | 50.0 - 120.0% of mass 95           | 87.0                 |
| 175 | 4.0 - 9.0% of mass 174             | 6.3 ( 7.2 ) 1        |
| 176 | 93.0 - 101.0% of mass 174          | 86.2 ( 99.1 ) 1      |
| 177 | 5.0 - 9.0% of mass 176             | 5.7 ( 6.6 ) 2        |

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS AND STANDARDS:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | DATE<br>ANALYZED | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|------------------|
| 01 | VSTD050B          | DAILY CALIB      | AS466          | 2/18/93          | 1650             |
| 02 | VBLKB             | VOA BLANK        | AS467          | 2/18/93          | 1731             |
| 03 | VLCS              | VOA LCS          | AS469          | 2/18/93          | 1845             |
| 04 |                   |                  |                |                  |                  |
| 05 |                   |                  |                |                  |                  |
| 06 |                   |                  |                |                  |                  |
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| 21 |                   |                  |                |                  |                  |
| 22 |                   |                  |                |                  |                  |

5A  
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
BROMOFLUOROBENZENE (BFB)

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Lab File ID: BR810 ✓ BFB Injection Date: 2/13/93 ✓

Instrument ID: VOA2 BFB Injection Time: 0721 ✓

GC Column: db-624 ID: 0.53 (mm) Heated Purge: (Y/N) N ✓

| m/e | ION ABUNDANCE CRITERIA             | % RELATIVE ABUNDANCE |
|-----|------------------------------------|----------------------|
| 50  | 8.0 - 40.0% of mass 95             | 19.3 ✓               |
| 75  | 30.0 - 66.0% of mass 95            | 51.4 ✓               |
| 95  | Base peak, 100% relative abundance | 100.0                |
| 96  | 5.0 - 9.0% of mass 95              | 6.1 ✓                |
| 173 | Less than 2.0% of mass 174         | 0.0 ( 0.0) 1         |
| 174 | 50.0 - 120.0% of mass 95           | 72.0 ✓               |
| 175 | 4.0 - 9.0% of mass 174             | 4.8 ✓ 6.7 ✓ 1        |
| 176 | 93.0 - 101.0% of mass 174          | 71.8 ( 99.7) 1       |
| 177 | 5.0 - 9.0% of mass 176             | 5.3 ( 7.4) 2         |

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS AND STANDARDS:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | DATE<br>ANALYZED | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|------------------|
| 01 | VSTD020           | BR812 TCLP       | BR812          | 2/13/93          | 0830             |
| 02 | VSTD050           | BR813 TCLP       | BR813          | 2/13/93          | 0904             |
| 03 | VSTD100           | BR814 TCLP       | BR814          | 2/13/93          | 0939             |
| 04 | VSTD200           | BR815 TCLP       | BR815          | 2/13/93          | 1013             |
| 05 | VSTD010           | BR820 TCLP       | BR820          | 2/13/93          | 1305             |
| 06 |                   |                  |                |                  |                  |
| 07 |                   |                  |                |                  |                  |
| 08 |                   |                  |                |                  |                  |
| 09 |                   |                  |                |                  |                  |
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| 17 |                   |                  |                |                  |                  |
| 18 |                   |                  |                |                  |                  |
| 19 |                   |                  |                |                  |                  |
| 20 |                   |                  |                |                  |                  |
| 21 |                   |                  |                |                  |                  |
| 22 |                   |                  |                |                  |                  |

5A  
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
BROMOFLUOROBENZENE (BFB)

Lab Name: NDRC LABORATORIES, INC. Contract: 0  
Lab Code: 0 Case No.: SAS No.: SDG No.: P1443  
Lab File ID: BR915 BFB Injection Date: 2/17/93  
Instrument ID: VOA2 BFB Injection Time: 1822  
GC Column: DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) N

| m/e | ION ABUNDANCE CRITERIA             | % RELATIVE ABUNDANCE |
|-----|------------------------------------|----------------------|
| 50  | 8.0 - 40.0% of mass 95             | 21.1                 |
| 75  | 30.0 - 66.0% of mass 95            | 53.8                 |
| 95  | Base peak, 100% relative abundance | 100.0                |
| 96  | 5.0 - 9.0% of mass 95              | 6.2                  |
| 173 | Less than 2.0% of mass 174         | 0.0 ( 0.0) 1         |
| 174 | 50.0 - 120.0% of mass 95           | 62.2                 |
| 175 | 4.0 - 9.0% of mass 174             | 4.3 6.9 1            |
| 176 | 93.0 - 101.0% of mass 174          | 61.9 99.5 1          |
| 177 | 5.0 - 9.0% of mass 176             | 4.8 7.4 2            |

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS AND STANDARDS:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | DATE<br>ANALYZED | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|------------------|
| 01 | VSTD050A          | DAILY CALIB      | BR916          | 2/17/93          | 1838             |
| 02 | VBLKA             | VOA BLANK        | BR917          | 2/17/93          | 1915             |
| 03 | TCLPBLK           | TCLP BLANK       | BR934          | 2/17/93          | 2106             |
| 04 | 1443-2            | 1443-2           | BR928          | 2/18/93          | 0209             |
| 05 | 1443-3            | 1443-3           | BR929          | 2/18/93          | 0243             |
| 06 |                   |                  |                |                  |                  |
| 07 |                   |                  |                |                  |                  |
| 08 |                   |                  |                |                  |                  |
| 09 |                   |                  |                |                  |                  |
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| 22 |                   |                  |                |                  |                  |

6A  
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: NDRC LABORATORIES, INC. Contract: 0  
 Lab Code: 0 Case No.: SAS No.: SDG No.: P1443  
 Instrument ID: VOA1 Calibration Date(s): 2/14/93 2/14/93  
 Heated Purge: (Y/N) N Calibration Times: 1500 1717  
 GC Column: DB-624 ID: 0.53 (mm)

LAB FILE ID: RRF10 =AS349 RRF20 =AS350  
 RRF50 =AS351 RRF100=AS352 RRF200=AS353

| COMPOUND              | RRF10            | RRF20            | RRF50            | RRF100           | RRF200           | RRF              | % RSD  |
|-----------------------|------------------|------------------|------------------|------------------|------------------|------------------|--------|
| Vinyl Chloride        | * 1.228          | 1.390            | 1.360            | 1.415            | 1.253            | 1.329            | 6.3 *  |
| 1,1-Dichloroethene    | * 1.460          | 1.569            | 1.496            | 0.809            | 1.339            | 1.335            | 22.9 * |
| Chloroform            | * 3.127          | 3.455            | 3.188            | 2.696            | 3.070            | 3.107            | 8.8 *  |
| 1,2-Dichloroethane    | * 1.691          | 1.963            | 1.966            | 1.842            | 1.802            | 1.853            | 6.3 *  |
| 2-Butanone            | <del>0.030</del> | <del>0.025</del> | <del>0.036</del> | <del>0.023</del> | <del>0.029</del> | <del>0.029</del> | 17.4   |
| Carbon Tetrachloride  | * 0.593          | 0.641            | 0.542            | 0.392            | 0.575            | 0.549            | 17.2 * |
| Trichloroethene       | * 0.394          | 0.442            | 0.408            | 0.394            | 0.391            | 0.406            | 5.2 *  |
| Benzene               | * 0.957          | 1.082            | 1.021            | 1.033            | 1.009            | 1.020            | 4.4 *  |
| Tetrachloroethene     | * 0.448          | 0.505            | 0.464            | 0.449            | 0.444            | 0.462            | 5.5 *  |
| Chlorobenzene         | * 0.999          | 1.090            | 1.023            | 1.021            | 0.966            | 1.020            | 4.5 *  |
| Toluene-d8            | 1.379            | 1.340            | 1.357            | 1.327            | 1.393            | 1.359            | 2.0    |
| Bromofluorobenzene    | * 0.651          | 0.587            | 0.583            | 0.604            | 0.556            | 0.596            | 5.9 *  |
| 1,2-Dichloroethane-d4 | 1.609            | 1.597            | 1.658            | 1.549            | 1.597            | 1.602            | 2.4    |

\* Compounds with required minimum RRF and maximum %RSD values.  
 All other compounds must meet a minimum RRF of 0.010.

7A  
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: NDRC LABORATORIES, INC. Contract: 0  
 Lab Code: 0 Case No.: SAS No.: SDG No.: P1443  
 Instrument ID: VOA1 Calibration Date: 2/18/93 Time: 1650  
 Lab File ID: AS466 Init. Calib. Date(s): 2/14/93 2/14/93  
 Heated Purge: (Y/N) N Init. Calib. Times: 1500 1717  
 GC Column: DB-624 ID: 0.53 (mm)

| COMPOUND              | RRF   | RRF50 | MIN RRF | %D   | MAX %D |
|-----------------------|-------|-------|---------|------|--------|
| Vinyl Chloride        | 1.329 | 1.247 | 0.100   | 6.2  | 25.0   |
| 1,1-Dichloroethene    | 1.335 | 1.391 | 0.100   | 4.2  | 25.0   |
| Chloroform            | 3.107 | 2.985 | 0.200   | 3.9  | 25.0   |
| 1,2-Dichloroethane    | 1.853 | 1.694 | 0.100   | 8.6  | 25.0   |
| 2-Butanone            | 0.029 | 0.025 |         | 13.8 |        |
| Carbon Tetrachloride  | 0.549 | 0.563 | 0.100   | 2.6  | 25.0   |
| Trichloroethene       | 0.406 | 0.375 | 0.300   | 7.6  | 25.0   |
| Benzene               | 1.020 | 0.948 | 0.500   | 7.1  | 25.0   |
| Tetrachloroethene     | 0.462 | 0.437 | 0.200   | 5.4  | 25.0   |
| Chlorobenzene         | 1.020 | 0.889 | 0.500   | 12.8 | 25.0   |
| Toluene-d8            | 1.359 | 1.363 |         | 0.3  |        |
| Bromofluorobenzene    | 0.596 | 0.604 | 0.200   | 1.3  | 25.0   |
| 1,2-Dichloroethane-d4 | 1.602 | 1.621 |         | 1.2  |        |

All other compounds must meet a minimum RRF of 0.010

7A  
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: NDRC LABORATORIES, INC.      Contract: 0

Lab Code: 0      Case No.:      SAS No.:      SDG No.: P1443

Instrument ID: VOA1      Calibration Date: 2/19/93      Time: 0722 ✓

Lab File ID: AS487 ✓      Init. Calib. Date(s): 2/14/93      2/14/93

Heated Purge: (Y/N) N ✓      Init. Calib. Times: 1500 ✓      1717 ✓

GC Column: DB-624      ID: 0.53 (mm)

| COMPOUND              | RRF   | RRF50 | MIN RRF | %D   | MAX %D |
|-----------------------|-------|-------|---------|------|--------|
| Vinyl Chloride        | 1.329 | 1.238 | 0.100   | 6.8  | 25.0   |
| 1,1-Dichloroethene    | 1.335 | 1.417 | 0.100   | 6.1  | 25.0   |
| Chloroform            | 3.107 | 3.027 | 0.200   | 2.6  | 25.0   |
| 1,2-Dichloroethane    | 1.853 | 1.716 | 0.100   | 7.4  | 25.0   |
| 2-Butanone            | 0.029 | 0.024 |         | 17.2 |        |
| Carbon Tetrachloride  | 0.549 | 0.575 | 0.100   | 4.7  | 25.0   |
| Trichloroethene       | 0.406 | 0.391 | 0.300   | 3.7  | 25.0   |
| Benzene               | 1.020 | 0.972 | 0.500   | 4.7  | 25.0   |
| Tetrachloroethene     | 0.462 | 0.458 | 0.200   | 0.9  | 25.0   |
| Chlorobenzene         | 1.020 | 0.936 | 0.500   | 8.2  | 25.0   |
| Toluene-d8            | 1.359 | 1.368 |         | 0.7  |        |
| Bromofluorobenzene    | 0.596 | 0.601 | 0.200   | 0.8  | 25.0   |
| 1,2-Dichloroethane-d4 | 1.602 | 1.533 |         | 4.3  |        |

All other compounds must meet a minimum RRF of 0.010

6A  
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: NDRC LABORATORIES, INC. Contract: 0  
 Lab Code: 0 Case No.: SAS No.: SDG No.: P1443  
 Instrument ID: VOA2 Calibration Date(s): 2/13/92 2/13/93  
 Heated Purge: (Y/N) N Calibration Times: 0830 1305  
 GC Column: DB-624 ID: 0.53 (mm)

|                       |         |              |       |              |        |       |          |
|-----------------------|---------|--------------|-------|--------------|--------|-------|----------|
| LAB FILE ID:          |         | RRF10 =BR820 |       | RRF20 =BR812 |        |       |          |
| RRF50 =BR813          |         | RRF100=BR814 |       | RRF200=BR815 |        |       |          |
| COMPOUND              | RRF10   | RRF20        | RRF50 | RRF100       | RRF200 | RRF   | %<br>RSD |
| Vinyl Chloride        | * 0.952 | 1.067        | 1.053 | 0.845        | 0.840  | 0.951 | 11.4 *   |
| 1,1-Dichloroethene    | * 1.444 | 1.525        | 1.628 | 1.308        | 1.295  | 1.440 | 9.9 *    |
| Chloroform            | * 3.419 | 3.793        | 3.921 | 3.222        | 3.144  | 3.500 | 9.8 *    |
| 1,2-Dichloroethane    | * 2.207 | 2.412        | 2.641 | 2.123        | 2.068  | 2.290 | 10.3 *   |
| 2-Butanone            | 0.030   | 0.038        | 0.043 | 0.027        | 0.025  | 0.033 | 23.2     |
| Carbon Tetrachloride  | * 0.566 | 0.697        | 0.678 | 0.551        | 0.541  | 0.607 | 12.3 *   |
| Trichloroethene       | * 0.413 | 0.452        | 0.443 | 0.376        | 0.352  | 0.407 | 10.5 *   |
| Benzene               | * 0.989 | 1.185        | 1.116 | 0.900        | 0.889  | 1.016 | 12.9 *   |
| Tetrachloroethene     | * 0.426 | 0.483        | 0.458 | 0.398        | 0.365  | 0.426 | 11.0 *   |
| Chlorobenzene         | * 1.013 | 1.155        | 1.128 | 0.921        | 0.880  | 1.019 | 12.0 *   |
| Toluene-d8            | 1.534   | 1.063        | 1.224 | 1.306        | 1.248  | 1.275 | 13.4     |
| Bromofluorobenzene    | * 0.925 | 0.609        | 0.683 | 0.716        | 0.646  | 0.716 | 17.3 *   |
| 1,2-Dichloroethane-d4 | 2.039   | 1.643        | 1.827 | 1.874        | 1.873  | 1.851 | 7.6      |

\* Compounds with required minimum RRF and maximum %RSD values.  
 All other compounds must meet a minimum RRF of 0.010.

7A  
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: NDRC LABORATORIES, INC. Contract: 0  
 Lab Code: 0 Case No.: SAS No.: SDG No.: P1443  
 Instrument ID: VOA2 Calibration Date: 2/17/92 Time: 1838  
 Lab File ID: BR916 Init. Calib. Date(s): 2/13/93 2/13/93  
 Heated Purge: (Y/N) N Init. Calib. Times: 0830 1305  
 GC Column: DB-624 ID: 0.53 (mm)

| COMPOUND              | RRF   | RRF50 | MIN RRF | %D  | MAX %D |
|-----------------------|-------|-------|---------|-----|--------|
| Vinyl Chloride        | 0.951 | 1.009 | 0.100   | 6.1 | 25.0   |
| 1,1-Dichloroethene    | 1.440 | 1.342 | 0.100   | 6.8 | 25.0   |
| Chloroform            | 3.500 | 3.224 | 0.200   | 7.9 | 25.0   |
| 1,2-Dichloroethane    | 2.290 | 2.175 | 0.100   | 5.0 | 25.0   |
| 2-Butanone            | 0.033 | 0.030 |         | 9.1 |        |
| Carbon Tetrachloride  | 0.607 | 0.597 | 0.100   | 1.6 | 25.0   |
| Trichloroethene       | 0.407 | 0.377 | 0.300   | 7.4 | 25.0   |
| Benzene               | 1.016 | 0.948 | 0.500   | 6.7 | 25.0   |
| Tetrachloroethene     | 0.426 | 0.401 | 0.200   | 5.9 | 25.0   |
| Chlorobenzene         | 1.019 | 0.919 | 0.500   | 9.8 | 25.0   |
| Toluene-d8            | 1.275 | 1.352 |         | 6.0 |        |
| Bromofluorobenzene    | 0.716 | 0.754 | 0.200   | 5.3 | 25.0   |
| 1,2-Dichloroethane-d4 | 1.851 | 2.013 |         | 8.8 |        |

All other compounds must meet a minimum RRF of 0.010

8A  
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: NDRC LABORATORIES, INC.      Contract: 0  
 Lab Code: 0      Case No.:      SAS No.:      SDG No.: P1443  
 Lab File ID (Standard): AS466      Date Analyzed: 2/18/93  
 Instrument ID: VOA1      Time Analyzed: 1650  
 GC Column: DB-624      ID: 0.53 (mm)      Heated Purge: (Y/N) N

|                | IS1 (BCM) | RT #  | IS2 (DFB) | RT #  | IS3 (CBZ) | RT #  |
|----------------|-----------|-------|-----------|-------|-----------|-------|
|                | AREA #    |       | AREA #    |       | AREA #    |       |
| =====          | =====     | ===== | =====     | ===== | =====     | ===== |
| 12 HOUR STD    | 19478     | 8.99  | 85224     | 11.65 | 57575     | 17.20 |
| UPPER LIMIT    | 38956     | 9.49  | 170448    | 12.15 | 115150    | 17.70 |
| LOWER LIMIT    | 9739      | 8.49  | 42612     | 11.15 | 28788     | 16.70 |
| =====          | =====     | ===== | =====     | ===== | =====     | ===== |
| EPA SAMPLE NO. |           |       |           |       |           |       |
| =====          | =====     | ===== | =====     | ===== | =====     | ===== |
| 01 VBLKB       | 18008     | 8.99  | 72851     | 11.66 | 49995     | 17.21 |
| 02 VLCS        | 16555     | 9.02  | 72884     | 11.68 | 50114     | 17.21 |
| 03             |           |       |           |       |           |       |
| 04             |           |       |           |       |           |       |
| 05             |           |       |           |       |           |       |
| 06             |           |       |           |       |           |       |
| 07             |           |       |           |       |           |       |
| 08             |           |       |           |       |           |       |
| 09             |           |       |           |       |           |       |
| 10             |           |       |           |       |           |       |
| 11             |           |       |           |       |           |       |
| 12             |           |       |           |       |           |       |
| 13             |           |       |           |       |           |       |
| 14             |           |       |           |       |           |       |
| 15             |           |       |           |       |           |       |
| 16             |           |       |           |       |           |       |
| 17             |           |       |           |       |           |       |
| 18             |           |       |           |       |           |       |
| 19             |           |       |           |       |           |       |
| 20             |           |       |           |       |           |       |
| 21             |           |       |           |       |           |       |
| 22             |           |       |           |       |           |       |

IS1 (BCM) = Bromochloromethane  
 IS2 (DFB) = 1,4-Difluorobenzene  
 IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area  
 AREA LOWER LIMIT = - 50% of internal standard area  
 RT UPPER LIMIT = +0.50 minutes of internal standard RT  
 RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside of QC limits with an asterisk.  
 \* Values outside of QC limits.

8A  
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name:NDRC LABORATORIES, INC. Contract:0  
 Lab Code:0 Case No.: SAS No.: SDG No.:P1443  
 Lab File ID (Standard):AS487 Date Analyzed: 2/19/93  
 Instrument ID:VOA1 Time Analyzed:0722  
 GC Column:DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) N

|                | IS1 (BCM) |       | IS2 (DFB) |       | IS3 (CBZ) |       |
|----------------|-----------|-------|-----------|-------|-----------|-------|
|                | AREA #    | RT #  | AREA #    | RT #  | AREA #    | RT #  |
| =====          | =====     | ===== | =====     | ===== | =====     | ===== |
| 12 HOUR STD    | 21230     | 9.03  | 89769     | 11.66 | 59579     | 17.22 |
| UPPER LIMIT    | 42460     | 9.53  | 179538    | 12.16 | 119158    | 17.72 |
| LOWER LIMIT    | 10615     | 8.53  | 44885     | 11.16 | 29790     | 16.72 |
| =====          | =====     | ===== | =====     | ===== | =====     | ===== |
| EPA SAMPLE NO. |           |       |           |       |           |       |
| =====          | =====     | ===== | =====     | ===== | =====     | ===== |
| 01 VBLKC       | 17685     | 9.02  | 73132     | 11.68 | 49623     | 17.22 |
| 02 1443-1MS    | 15528     | 9.04  | 63152     | 11.70 | 43452     | 17.23 |
| 03 1443-1      | 15567     | 9.03  | 62389     | 11.69 | 41975     | 17.24 |
| 04 1443-1MSD   | 17242     | 9.05  | 69490     | 11.71 | 48017     | 17.24 |
| 05             |           |       |           |       |           |       |
| 06             |           |       |           |       |           |       |
| 07             |           |       |           |       |           |       |
| 08             |           |       |           |       |           |       |
| 09             |           |       |           |       |           |       |
| 10             |           |       |           |       |           |       |
| 11             |           |       |           |       |           |       |
| 12             |           |       |           |       |           |       |
| 13             |           |       |           |       |           |       |
| 14             |           |       |           |       |           |       |
| 15             |           |       |           |       |           |       |
| 16             |           |       |           |       |           |       |
| 17             |           |       |           |       |           |       |
| 18             |           |       |           |       |           |       |
| 19             |           |       |           |       |           |       |
| 20             |           |       |           |       |           |       |
| 21             |           |       |           |       |           |       |
| 22             |           |       |           |       |           |       |

IS1 (BCM) = Bromochloromethane  
 IS2 (DFB) = 1,4-Difluorobenzene  
 IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area  
 AREA LOWER LIMIT = - 50% of internal standard area  
 RT UPPER LIMIT = +0.50 minutes of internal standard RT  
 RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside of QC limits with an asterisk.  
 \* Values outside of QC limits.

8A  
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: NDRC LABORATORIES, INC.      Contract: 0  
 Lab Code: 0      Case No.:      SAS No.:      SDG No.: P1443  
 Lab File ID (Standard): BR916      Date Analyzed: 2/17/93  
 Instrument ID: VOA2      Time Analyzed: 1838  
 GC Column: DB-624      ID: 0.53 (mm)      Heated Purge: (Y/N) N

|                | IS1 (BCM) | RT #  | IS2 (DFB) | RT #  | IS3 (CBZ) | RT #  |
|----------------|-----------|-------|-----------|-------|-----------|-------|
|                | AREA #    |       | AREA #    |       | AREA #    |       |
| =====          | =====     | ===== | =====     | ===== | =====     | ===== |
| 12 HOUR STD    | 43855     | 8.45  | 182393    | 11.25 | 121958    | 16.87 |
| UPPER LIMIT    | 87710     | 8.95  | 364786    | 11.75 | 243916    | 17.37 |
| LOWER LIMIT    | 21928     | 7.95  | 91197     | 10.75 | 60979     | 16.37 |
| =====          | =====     | ===== | =====     | ===== | =====     | ===== |
| EPA SAMPLE NO. |           |       |           |       |           |       |
| =====          | =====     | ===== | =====     | ===== | =====     | ===== |
| 01 VBLKA       | 45516     | 8.47  | 190946    | 11.24 | 126611    | 16.88 |
| 02 TCLPBLK     | 49765     | 8.47  | 207832    | 11.24 | 140686    | 16.89 |
| 03 1443-2      | 32969     | 8.50  | 157077    | 11.25 | 103987    | 16.87 |
| 04 1443-3      | 43262     | 8.47  | 178653    | 11.26 | 116470    | 16.88 |
| 05             |           |       |           |       |           |       |
| 06             |           |       |           |       |           |       |
| 07             |           |       |           |       |           |       |
| 08             |           |       |           |       |           |       |
| 09             |           |       |           |       |           |       |
| 10             |           |       |           |       |           |       |
| 11             |           |       |           |       |           |       |
| 12             |           |       |           |       |           |       |
| 13             |           |       |           |       |           |       |
| 14             |           |       |           |       |           |       |
| 15             |           |       |           |       |           |       |
| 16             |           |       |           |       |           |       |
| 17             |           |       |           |       |           |       |
| 18             |           |       |           |       |           |       |
| 19             |           |       |           |       |           |       |
| 20             |           |       |           |       |           |       |
| 21             |           |       |           |       |           |       |
| 22             |           |       |           |       |           |       |

IS1 (BCM) = Bromochloromethane  
 IS2 (DFB) = 1,4-Difluorobenzene  
 IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area  
 AREA LOWER LIMIT = - 50% of internal standard area  
 RT UPPER LIMIT = +0.50 minutes of internal standard RT  
 RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside of QC limits with an asterisk.  
 \* Values outside of QC limits.

## QUANT REPORT

Page 1

Operator ID: JKA  
 Output File: ^BR916::D1  
 Data File: >BR916::A1  
 Name: 8240 STANDARD  
 Misc: DAILY CALIBRATION

Quant Rev: 7      Quant Time: 930217 19:07  
 Injected at: 930217 18:38  
 Dilution Factor: 1.00000  
 Instrument ID: VOA2

ID File: ID\_V2A::QT

Title: NDRC VOA STANDARDS FOR DAILY CALIBRATION OCTOBER 1990

Last Calibration: 930216 15:01

Last Qcal Time: &lt;none&gt;

(on )

| Compound                       | R.T.  | Scan# | Area   | Conc  | Units | q   |
|--------------------------------|-------|-------|--------|-------|-------|-----|
| 1) *Bromochloromethane         | 8.45  | 389   | 43855  | 50.00 | ug/l  | 97  |
| 2) Chloromethane               | 2.09  | 63    | 36897  | 56.49 | ug/l  | 94  |
| 3) Bromomethane                | 2.60  | 89    | 55870  | 52.53 | ug/l  | 89  |
| 4) Vinyl Chloride              | 2.23  | 70    | 44237  | 53.91 | ug/l  | 95  |
| 5) Chloroethane                | 2.75  | 97    | 33198  | 60.76 | ug/l  | 98  |
| 6) Acrolein                    | 3.67  | 144   | 4786   | 52.53 | ug/l  | 100 |
| 7) Acrylonitrile               | 5.15  | 220   | 10385  | 41.73 | ug/l  | 92  |
| 8) Methylene Chloride          | 4.65  | 194   | 59633  | 45.08 | ug/l  | 96  |
| 9) Acetone                     | 3.92  | 157   | 17167  | 46.17 | ug/l  | 81  |
| 10) Carbon Disulfide           | 4.14  | 168   | 160111 | 43.19 | ug/l  | 100 |
| 11) Fluorotrichloromethane     | 3.07  | 113   | 133148 | 51.98 | ug/l  | 98  |
| 12) 1,1-Dichloroethene         | 3.81  | 151   | 58844  | 47.28 | ug/l  | 95  |
| 13) 1,1-Dichloroethane         | 6.13  | 270   | 120215 | 47.80 | ug/l  | 98  |
| 14) 1,2-Dichloroethene (total) | 5.19  | 222   | 62302  | 46.60 | ug/l  | 91  |
| 15) Chloroform                 | 8.80  | 407   | 141398 | 46.71 | ug/l  | 91  |
| 16) 1,2-Dichloroethane-d4      | 10.09 | 473   | 88283  | 54.56 | ug/l  | 75  |
| 17) 1,2-Dichloroethane         | 10.27 | 482   | 95390  | 48.21 | ug/l  | 97  |
| 18) *1,4-Difluorobenzene       | 11.25 | 532   | 182393 | 50.00 | ug/l  | 100 |
| 19) 2-Butanone                 | 7.95  | 363   | 5539   | 48.47 | ug/l  | 95  |
| 20) 1,1,1-Trichloroethane      | 9.21  | 428   | 119312 | 48.64 | ug/l  | 79  |
| 21) Carbon Tetrachloride       | 9.64  | 450   | 108806 | 49.67 | ug/l  | 99  |
| 22) Vinyl Acetate              | 6.38  | 283   | 19503  | 48.59 | ug/l  | 97  |
| 23) Bromodichloromethane       | 12.85 | 614   | 104241 | 45.77 | ug/l  | 91  |
| 24) 1,2-Dichloropropane        | 12.22 | 582   | 70297  | 48.90 | ug/l  | 94  |
| 25) cis-1,3-Dichloropropene    | 13.76 | 661   | 87630  | 65.98 | ug/l  | 97  |
| 26) Trichloroethene            | 11.75 | 558   | 68847  | 46.86 | ug/l  | 86  |
| 27) Dibromochloromethane       | 15.85 | 768   | 66222  | 44.84 | ug/l  | 98  |
| 28) 1,1,2-Trichloroethane      | 15.17 | 733   | 48829  | 47.43 | ug/l  | 96  |
| 29) Benzene                    | 10.17 | 477   | 172830 | 47.34 | ug/l  | 100 |
| 30) trans-1,3-Dichloropropene  | 14.86 | 717   | 78713  | 23.55 | ug/l  | 94  |
| 31) 2-chloroethyl vinyl ether  | 12.22 | 582   | 70297  | 48.90 | ug/l  | 91  |
| 32) *Chlorobenzene-d5          | 16.87 | 820   | 121958 | 50.00 | ug/l  | 96  |
| 33) Bromoform                  | 18.35 | 896   | 35014  | 44.20 | ug/l  | 98  |
| 34) 4-Methyl-2-pentanone       | 14.14 | 680   | 48482  | 47.34 | ug/l  | 100 |
| 35) 2-Hexanone                 | 15.70 | 760   | 34060  | 46.19 | ug/l  | 84  |
| 36) Tetrachloroethene          | 15.40 | 745   | 48935  | 47.59 | ug/l  | 97  |
| 37) 1,1,2,2-Tetrachloroethane  | 19.19 | 939   | 68292  | 45.73 | ug/l  | 97  |
| 38) Toluene                    | 14.37 | 692   | 94462  | 46.23 | ug/l  | 98  |
| 39) Toluene-d8                 | 14.25 | 686   | 164865 | 52.75 | ug/l  | 92  |
| 40) Chlorobenzene              | 16.93 | 823   | 112082 | 45.73 | ug/l  | 99  |
| 41) Ethylbenzene               | 17.16 | 835   | 52304  | 46.25 | ug/l  | 99  |
| 42) Styrene                    | 18.06 | 881   | 105024 | 46.46 | ug/l  | 100 |
| 43) M&P Xylene                 | 17.36 | 845   | 132436 | 93.97 | ug/l  | 87  |

## QUANT REPORT

Page 2

Operator ID: JKA  
Output File: ^BR916::D1  
Data File: >BR916::A1  
Name: 8240 STANDARD  
Misc: DAILY CALIBRATION

Quant Rev: 7      Quant Time: 930217 19:07  
                  Injected at: 930217 18:38  
Dilution Factor: 1.00000  
Instrument ID: VOA2

ID File: ID\_V2A::QT

Title: NDRC VOA STANDARDS FOR DAILY CALIBRATION OCTOBER 1990

Last Calibration: 930216 15:01

Last Qcal Time: &lt;none&gt;

|     | Compound            | R.T.  | Scan# | Area  | Conc  | Units | q   |
|-----|---------------------|-------|-------|-------|-------|-------|-----|
| 44) | O-Xylene            | 18.04 | 880   | 63146 | 47.67 | ug/l  | 92  |
| 45) | Bromofluorobenzene  | 18.92 | 925   | 91932 | 53.03 | ug/l  | 100 |
| 46) | 1,3-Dichlorobenzene | 20.76 | 1019  | 82170 | 45.38 | ug/l  | 94  |
| 47) | 1,4-Dichlorobenzene | 20.89 | 1026  | 91984 | 48.63 | ug/l  | 97  |
| 48) | 1,2-Dichlorobenzene | 21.52 | 1058  | 77635 | 46.13 | ug/l  | 91  |

\* Compound is ISTD

Operator ID: JKK  
 Output File: ^AS487::D1  
 Data File: >AS487::A2  
 Name: 8240STD  
 Misc: DAILY CALIBRATION

Quant Rev: 7      Quant Time: 930219 07:51  
 Injected at: 930219 07:22  
 Dilution Factor: 1.00000  
 Instrument ID: VOA1

ID File: ID\_V1A::QT

Title: NDRC VOA Standards for Intial Quantitation (EPA METHOD 8240)

Last Calibration: 930216 11:51

Last Qcal Time: <none>

|     | Compound                   | R.T.  | Scan# | Area   | Conc  | Units | q   |
|-----|----------------------------|-------|-------|--------|-------|-------|-----|
| 1)  | *Bromochloromethane        | 9.03  | 366   | 21230  | 50.00 | UG/L  | 90  |
| 2)  | Chloromethane              | 2.15  | 14    | 26328  | 45.80 | UG/L  | 92  |
| 3)  | Bromomethane               | 2.73  | 44    | 26729  | 45.92 | UG/L  | 98  |
| 4)  | Vinyl Chloride             | 2.28  | 21    | 26290  | 47.62 | UG/L  | 99  |
| 5)  | Chloroethane               | 2.89  | 52    | 18983  | 54.76 | UG/L  | 98  |
| 7)  | Acrylonitrile              | 5.55  | 188   | 4188   | 37.98 | UG/L  | 89  |
| 8)  | Methylene Chloride         | 5.00  | 160   | 30557  | 43.20 | UG/L  | 94  |
| 9)  | Acetone                    | 4.24  | 121   | 8169   | 52.05 | UG/L  | 100 |
| 10) | Carbon Disulfide           | 4.43  | 131   | 96336  | 48.00 | UG/L  | 100 |
| 11) | Fluorotrichloromethane     | 3.26  | 71    | 59734M | 51.75 | UG/L  |     |
| 12) | 1,1-Dichloroethene         | 4.08  | 113   | 30087  | 53.04 | UG/L  | 85  |
| 13) | 1,1-Dichloroethane         | 6.60  | 242   | 60482  | 51.90 | UG/L  | 96  |
| 14) | 1,2-Dichloroethene (total) | 5.59  | 190   | 33882  | 55.76 | UG/L  | 91  |
| 15) | Chloroform                 | 9.34  | 382   | 64266  | 49.29 | UG/L  | 96  |
| 16) | 1,2-Dichloroethane-d4      | 10.55 | 444   | 32554  | 48.21 | UG/L  | 96  |
| 17) | 1,2-Dichloroethane         | 10.73 | 453   | 36434  | 47.08 | UG/L  | 79  |
| 18) | *1,4-Difluorobenzene       | 11.66 | 501   | 89769  | 50.00 | UG/L  | 100 |
| 19) | 2-Butanone                 | 8.50  | 339   | 2196   | 42.94 | UG/L  | 96  |
| 20) | 1,1,1-Trichloroethane      | 9.71  | 401   | 54922  | 52.62 | UG/L  | 95  |
| 21) | Carbon Tetrachloride       | 10.14 | 423   | 51652  | 52.25 | UG/L  | 81  |
| 22) | Vinyl Acetate              | 6.88  | 256   | 9584   | 50.38 | UG/L  | 100 |
| 23) | Bromodichloromethane       | 13.25 | 582   | 49953  | 47.11 | UG/L  | 96  |
| 24) | 1,2-Dichloropropane        | 12.64 | 551   | 35473  | 48.07 | UG/L  | 95  |
| 25) | cis-1,3-Dichloropropene    | 14.13 | 627   | 39491  | 72.04 | UG/L  | 91  |
| 26) | Trichloroethene            | 12.17 | 527   | 35101  | 48.21 | UG/L  | 96  |
| 27) | Dibromochloromethane       | 16.20 | 733   | 36138  | 44.27 | UG/L  | 98  |
| 28) | 1,1,2-Trichloroethane      | 15.52 | 698   | 21150  | 43.76 | UG/L  | 99  |
| 29) | Benzene                    | 10.67 | 450   | 87235  | 47.90 | UG/L  | 100 |
| 30) | trans-1,3-Dichloropropene  | 15.20 | 682   | 32687  | 23.48 | UG/L  | 92  |
| 32) | *Chlorobenzene-d5          | 17.22 | 785   | 59579  | 50.00 | UG/L  | 97  |
| 33) | Bromoform                  | 18.68 | 860   | 21486  | 42.98 | UG/L  | 99  |
| 34) | 4-Methyl-2-Pentanone       | 14.48 | 645   | 20017  | 40.16 | UG/L  | 100 |
| 35) | 2-Hexanone                 | 16.02 | 724   | 14889  | 44.26 | UG/L  | 87  |
| 36) | Tetrachloroethene          | 15.75 | 710   | 27313  | 50.41 | UG/L  | 96  |
| 37) | 1,1,2,2-Tetrachloroethane  | 19.52 | 903   | 25452  | 41.66 | UG/L  | 94  |
| 38) | Toluene                    | 14.75 | 659   | 49574  | 47.98 | UG/L  | 96  |
| 39) | Toluene-d8                 | 14.62 | 652   | 81484  | 50.18 | UG/L  | 96  |
| 40) | Chlorobenzene              | 17.27 | 788   | 55738  | 46.60 | UG/L  | 96  |
| 41) | Ethylbenzene               | 17.49 | 799   | 27034  | 48.08 | UG/L  | 97  |
| 42) | Styrene                    | 18.39 | 845   | 51221  | 48.32 | UG/L  | 87  |
| 43) | M&P-Xylene                 | 17.69 | 809   | 66150  | 99.47 | UG/L  | 99  |
| 44) | O-Xylene                   | 18.37 | 844   | 30587  | 49.58 | UG/L  | 97  |
| 45) | Bromofluorobenzene         | 19.27 | 890   | 35789  | 50.52 | UG/L  | 100 |

## QUANT REPORT

Page 1

Operator ID: JKA  
 Output File: ^AS466::D1  
 Data File: >AS466::A2  
 Name: 8240 STANDARD  
 Misc: DAILY CALIBRATION

Quant Rev: 7      Quant Time: 930218 17:19  
                   Injected at: 930218 16:50  
                   Dilution Factor: 1.00000  
                   Instrument ID: VOA1

ID File: ID\_V1A::QT  
 Title: NDRC VOA Standards for Initial Quantitation (EPA METHOD 8240)  
 Last Calibration: 930216 11:51      Last Qcal Date: <none>

| Compound                       | R.T.  | Q ion | Area   | Conc  | Units | q   |
|--------------------------------|-------|-------|--------|-------|-------|-----|
| 1) *Bromochloromethane         | 8.99  | 128.0 | 19478  | 50.00 | UG/L  | 97  |
| 2) Chloromethane               | 2.13  | 50.0  | 24952  | 47.31 | UG/L  | 95  |
| 3) Bromomethane                | 2.72  | 94.0  | 23753  | 44.48 | UG/L  | 98  |
| 4) Vinyl Chloride              | 2.29  | 62.0  | 24286  | 47.95 | UG/L  | 95  |
| 5) Chloroethane                | 2.87  | 64.0  | 16967  | 53.35 | UG/L  | 95  |
| 7) Acrylonitrile               | 5.53  | 53.0  | 4271   | 42.22 | UG/L  | 88  |
| 8) Methylene Chloride          | 5.00  | 84.0  | 27786  | 42.81 | UG/L  | 93  |
| 9) Acetone                     | 4.22  | 43.0  | 8657   | 60.12 | UG/L  | 100 |
| 10) Carbon Disulfide           | 4.42  | 76.0  | 88597  | 48.11 | UG/L  | 100 |
| 11) Fluorotrichloromethane     | 3.26  | 101.0 | 54775  | 51.73 | UG/L  | 95  |
| 12) 1,1-Dichloroethene         | 4.08  | 96.0  | 27102  | 52.07 | UG/L  | 92  |
| 13) 1,1-Dichloroethane         | 6.59  | 63.0  | 54235  | 50.72 | UG/L  | 94  |
| 14) 1,2-Dichloroethene (total) | 5.57  | 96.0  | 29362  | 52.67 | UG/L  | 90  |
| 15) Chloroform                 | 9.30  | 83.0  | 58140  | 48.61 | UG/L  | 95  |
| 16) 1,2-Dichloroethane-d4      | 10.53 | 65.0  | 31581  | 50.97 | UG/L  | 98  |
| 17) 1,2-Dichloroethane         | 10.71 | 62.0  | 32991  | 46.47 | UG/L  | 81  |
| 18) *1,4-Difluorobenzene       | 11.65 | 114.0 | 85224  | 50.00 | UG/L  | 100 |
| 19) 2-Butanone                 | 8.46  | 72.0  | 2119   | 43.64 | UG/L  | 99  |
| 20) 1,1,1-Trichloroethane      | 9.69  | 97.0  | 50245  | 50.71 | UG/L  | 99  |
| 21) Carbon Tetrachloride       | 10.12 | 117.0 | 47969  | 51.12 | UG/L  | 88  |
| 22) Vinyl Acetate              | 6.86  | 43.0  | 9572   | 53.00 | UG/L  | 100 |
| 23) Bromodichloromethane       | 13.23 | 83.0  | 46266  | 45.96 | UG/L  | 92  |
| 24) 1,2-Dichloropropane        | 12.63 | 63.0  | 32341  | 46.16 | UG/L  | 94  |
| 25) cis-1,3-Dichloropropene    | 14.11 | 75.0  | 36253  | 69.66 | UG/L  | 92  |
| 26) Trichloroethene            | 12.16 | 130.0 | 31998  | 46.29 | UG/L  | 98  |
| 27) Dibromochloromethane       | 16.18 | 129.0 | 33726  | 43.52 | UG/L  | 99  |
| 28) 1,1,2-Trichloroethane      | 15.50 | 97.0  | 19587  | 42.69 | UG/L  | 96  |
| 29) Benzene                    | 10.65 | 78.0  | 80834  | 46.76 | UG/L  | 100 |
| 30) trans-1,3-Dichloropropene  | 15.19 | 75.0  | 30220  | 22.87 | UG/L  | 94  |
| 32) *Chlorobenzene-d5          | 17.20 | 117.0 | 57575  | 50.00 | UG/L  | 94  |
| 33) Bromoform                  | 18.67 | 173.0 | 20622  | 42.69 | UG/L  | 99  |
| 34) 4-Methyl-2-Pentanone       | 14.46 | 43.0  | 19934  | 41.38 | UG/L  | 100 |
| 35) 2-Hexanone                 | 16.01 | 43.0  | 14636  | 45.02 | UG/L  | 86  |
| 36) Tetrachloroethene          | 15.73 | 164.0 | 25173  | 48.07 | UG/L  | 96  |
| 37) 1,1,2,2-Tetrachloroethane  | 19.51 | 83.0  | 24971  | 42.30 | UG/L  | 89  |
| 38) Toluene                    | 14.74 | 92.0  | 45692  | 45.76 | UG/L  | 95  |
| 39) Toluene-d8                 | 14.60 | 98.0  | 78488  | 50.02 | UG/L  | 98  |
| 40) Chlorobenzene              | 17.24 | 112.0 | 51204  | 44.30 | UG/L  | 95  |
| 41) Ethylbenzene               | 17.47 | 106.0 | 24753  | 45.55 | UG/L  | 98  |
| 42) Styrene                    | 18.37 | 104.0 | 46846M | 45.73 | UG/L  |     |
| 43) M&P-Xylene                 | 17.67 | 106.0 | 60274  | 93.79 | UG/L  | 98  |
| 44) O-Xylene                   | 18.35 | 106.0 | 27135  | 45.51 | UG/L  | 95  |
| 45) Bromofluorobenzene         | 19.23 | 95.0  | 34804  | 50.84 | UG/L  | 100 |

Start Date: 2-10-93

Start Time: 4:30 p.m.

Filtration Date: 2-10-93

Filtration Time: 4:30 p.m.

Tech Initials: BOF

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## QUANT REPORT

Page 1

Operator ID: JKA  
 Output File: ^AS469::D1  
 Data File: >AS469::A2  
 Name: LCS-TCLP  
 Misc: 50 UG/L

Quant Rev: 7      Quant Time: 930218 19:14  
 Injected at: 930218 18:45  
 Dilution Factor: 1.00000  
 Instrument ID: VOA1

ID File: ID\_Q1A::QT

Title: NDRC VOA Standards for Intial Quantitation (EPA METHOD 8240)

Last Calibration: 930216 11:52

Last Qcal Date: 930218 16:50

|     | Compound              | R.T.  | Scan# | Area  | Conc  | Units | q   |
|-----|-----------------------|-------|-------|-------|-------|-------|-----|
| 1)  | *Bromochloromethane   | 9.02  | 364   | 16555 | 50.00 | UG/L  | 98  |
| 4)  | Vinyl Chloride        | 2.30  | 20    | 18906 | 45.80 | UG/L  | 94  |
| 12) | 1,1-Dichloroethene    | 4.10  | 112   | 20473 | 44.44 | UG/L  | 90  |
| 15) | Chloroform            | 9.35  | 381   | 50457 | 51.05 | UG/L  | 91  |
| 16) | 1,2-Dichloroethane-d4 | 10.55 | 442   | 28117 | 52.38 | UG/L  | 99  |
| 17) | 1,2-Dichloroethane    | 10.74 | 452   | 29670 | 52.91 | UG/L  | 78  |
| 18) | *1,4-Difluorobenzene  | 11.68 | 500   | 72884 | 50.00 | UG/L  | 100 |
| 19) | 2-Butanone            | 8.51  | 338   | 1203  | 33.19 | UG/L  | 93  |
| 21) | Carbon Tetrachloride  | 10.16 | 422   | 40903 | 49.85 | UG/L  | 89  |
| 26) | Trichloroethene       | 12.19 | 526   | 27083 | 49.49 | UG/L  | 95  |
| 29) | Benzene               | 10.66 | 448   | 70102 | 50.70 | UG/L  | 100 |
| 32) | *Chlorobenzene-d5     | 17.21 | 783   | 50114 | 50.00 | UG/L  | 96  |
| 36) | Tetrachloroethene     | 15.75 | 708   | 20939 | 47.78 | UG/L  | 99  |
| 39) | Toluene-d8            | 14.63 | 651   | 67534 | 49.43 | UG/L  | 99  |
| 40) | Chlorobenzene         | 17.27 | 786   | 45143 | 50.64 | UG/L  | 98  |
| 45) | Bromofluorobenzene    | 19.26 | 888   | 30431 | 50.23 | UG/L  | 100 |
| 47) | 1,4-Dichlorobenzene   | 21.24 | 989   | 29948 | 46.84 | UG/L  | 94  |

\* Compound is ISTD

## QUANT REPORT

Page 1

Operator ID: SHEILA  
 Output File: ^AS500::D1  
 Data File: >AS500::A2  
 Name: MATRIX SPIKE  
 Misc: D93-1443-05 50 UG/L

Quant Rev: 7      Quant Time: 930219 16:00  
 Injected at: 930219 15:31  
 Dilution Factor: 1.00000  
 Instrument ID: VOA1

1443-1MSO

ID File: ID\_Q1A::QT

Title: NDRC VOA Standards for Intial Quantitation (EPA METHOD 8240)

Last Calibration: 930216 11:52

Last Qcal Date: 930219 07:22

|     | Compound              | R.T.  | Scan# | Area  | Conc   | Units | q   |
|-----|-----------------------|-------|-------|-------|--------|-------|-----|
| 1)  | *Bromochloromethane   | 9.05  | 365   | 17242 | 50.00  | UG/L  | 97  |
| 4)  | Vinyl Chloride        | 2.31  | 20    | 19330 | 45.27  | UG/L  | 94  |
| 9)  | Acetone               | 4.26  | 120   | 8915  | 67.19  | UG/L  | 100 |
| 12) | 1,1-Dichloroethene    | 4.10  | 112   | 20707 | 42.37  | UG/L  | 91  |
| 15) | Chloroform            | 9.38  | 382   | 48402 | 46.37  | UG/L  | 93  |
| 16) | 1,2-Dichloroethane-d4 | 10.59 | 444   | 29545 | 55.87  | UG/L  | 99  |
| 17) | 1,2-Dichloroethane    | 10.77 | 453   | 30773 | 52.00  | UG/L  | 82  |
| 18) | *1,4-Difluorobenzene  | 11.71 | 501   | 69490 | 50.00  | UG/L  | 100 |
| 19) | 2-Butanone            | 8.52  | 338   | 4707  | 138.45 | UG/L  | 98  |
| 21) | Carbon Tetrachloride  | 10.18 | 423   | 37781 | 47.25  | UG/L  | 83  |
| 26) | Trichloroethene       | 12.22 | 527   | 25240 | 46.45  | UG/L  | 95  |
| 29) | Benzene               | 10.69 | 449   | 75667 | 56.03  | UG/L  | 100 |
| 32) | *Chlorobenzene-d5     | 17.24 | 784   | 48017 | 50.00  | UG/L  | 93  |
| 36) | Tetrachloroethene     | 15.77 | 709   | 19775 | 44.92  | UG/L  | 99  |
| 39) | Toluene-d8            | 14.66 | 652   | 65737 | 50.05  | UG/L  | 98  |
| 40) | Chlorobenzene         | 17.30 | 787   | 46008 | 51.21  | UG/L  | 94  |
| 45) | Bromofluorobenzene    | 19.29 | 889   | 29937 | 51.90  | UG/L  | 100 |
| 47) | 1,4-Dichlorobenzene   | 21.27 | 990   | 30427 | 45.16  | UG/L  | 96  |

\* Compound is ISTD

## QUANT REPORT

Page 1

Operator ID: SHEILA  
 Output File: ^AS494::D1  
 Data File: >AS494::A2  
 Name: MATRIX SPIKE  
 Misc: D93-1443-04 50 UG/L

Quant Rev: 7      Quant Time: 930219 13:15  
 Injected at: 930219 12:46  
 Dilution Factor: 1.00000  
 Instrument ID: VOA1

1443-1MS

ID File: ID\_Q1A::QT

Title: NDRC VOA Standards for Intial Quantitation (EPA METHOD 8240)

Last Calibration: 930216 11:52

Last Qcal Date: 930219 07:22

|     | Compound              | R.T.  | Scan# | Area  | Conc  | Units | q   |
|-----|-----------------------|-------|-------|-------|-------|-------|-----|
| 1)  | *Bromochloromethane   | 9.04  | 367   | 15528 | 50.00 | UG/L  | 97  |
| 4)  | Vinyl Chloride        | 2.29  | 22    | 19183 | 49.88 | UG/L  | 97  |
| 12) | 1,1-Dichloroethene    | 4.09  | 114   | 17598 | 39.98 | UG/L  | 86  |
| 15) | Chloroform            | 9.35  | 383   | 47298 | 50.31 | UG/L  | 95  |
| 16) | 1,2-Dichloroethane-d4 | 10.58 | 446   | 26840 | 56.36 | UG/L  | 99  |
| 17) | 1,2-Dichloroethane    | 10.76 | 455   | 31638 | 59.36 | UG/L  | 80  |
| 18) | *1,4-Difluorobenzene  | 11.70 | 503   | 63152 | 50.00 | UG/L  | 100 |
| 19) | 2-Butanone            | 8.51  | 340   | 2566  | 83.05 | UG/L  | 99  |
| 21) | Carbon Tetrachloride  | 10.17 | 425   | 38507 | 52.99 | UG/L  | 85  |
| 26) | Trichloroethene       | 12.20 | 529   | 26384 | 53.42 | UG/L  | 93  |
| 29) | Benzene               | 10.68 | 451   | 77375 | 63.04 | UG/L  | 100 |
| 32) | *Chlorobenzene-d5     | 17.23 | 786   | 43452 | 50.00 | UG/L  | 95  |
| 36) | Tetrachloroethene     | 15.76 | 711   | 20516 | 51.50 | UG/L  | 97  |
| 39) | Toluene-d8            | 14.65 | 654   | 59049 | 49.68 | UG/L  | 98  |
| 40) | Chlorobenzene         | 17.29 | 789   | 46922 | 57.71 | UG/L  | 94  |
| 45) | Bromofluorobenzene    | 19.28 | 891   | 27437 | 52.56 | UG/L  | 100 |
| 47) | 1,4-Dichlorobenzene   | 21.27 | 993   | 31305 | 51.34 | UG/L  | 96  |

\* Compound is ISTD



1B  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1443-1MSD

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER Lab Sample ID: 1443-1MSD

Sample wt/vol: (10.0) (g/ml) ML Lab File ID: ED628

Level: (low/med) LOW Date Received: 2/06/93

% Moisture: decanted: (Y/N) Date Extracted: 2/10/93

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 2/17/93

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 0.0

|         |          |  |   |
|---------|----------|--|---|
| CAS NO. | COMPOUND | CONCENTRATION UNITS:<br>(ug/L or ug/Kg) UG/L | Q |
|---------|----------|--|---|

|               |                       |        |     |
|---------------|-----------------------|--------|-----|
| 110-86-1----- | Pyridine              | 2000.  | U B |
| 106-46-7----- | 1,4-Dichlorobenzene   | 7600.  | B   |
| 95-48-7-----  | 2-Methylphenol        | 8300.  |     |
| 108-60-1----- | 3-Methylphenol        | 8300.  |     |
| 106-44-5----- | 4-Methylphenol        | 8700.  |     |
| 67-72-1-----  | Hexachloroethane      | 8000.  |     |
| 98-95-3-----  | Nitrobenzene          | 8200.  |     |
| 87-68-3-----  | Hexachlorobutadiene   | 8200.  |     |
| 88-06-2-----  | 2,4,6-Trichlorophenol | 8700.  |     |
| 95-95-4-----  | 2,4,5-Trichlorophenol | 10000. |     |
| 121-14-2----- | 2,4-Dinitrotoluene    | 9500.  |     |
| 118-74-1----- | Hexachlorobenzene     | 9100.  |     |
| 87-86-5-----  | Pentachlorophenol     | 3800.  | J   |

(1) - Cannot be separated from Diphenylamine

1B  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1443-1MS

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER

Lab Sample ID: 1443-1MS

Sample wt/vol: 10.0 (g/ml) ML

Lab File ID: ED627

Level: (low/med) LOW

Date Received: 2/06/93

% Moisture: decanted: (Y/N)

Date Extracted: 2/10/93

Concentrated Extract Volume: 1000.0 (uL)

Date Analyzed: 2/17/93

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 0.0

|         |          |  |   |
|---------|----------|--|---|
| CAS NO. | COMPOUND | CONCENTRATION UNITS:<br>(ug/L or ug/Kg) UG/L | Q |
|---------|----------|--|---|

|                                   |        |     |
|-----------------------------------|--------|-----|
| 110-86-1-----Pyridine             | 2000.  | U B |
| 106-46-7-----1,4-Dichlorobenzene  | 8100.  | B   |
| 95-48-7-----2-Methylphenol        | 9200.  |     |
| 108-60-1-----3-Methylphenol       | 9300.  |     |
| 106-44-5-----4-Methylphenol       | 9700.  |     |
| 67-72-1-----Hexachloroethane      | 7400.  |     |
| 98-95-3-----Nitrobenzene          | 8000.  |     |
| 87-68-3-----Hexachlorobutadiene   | 8400.  |     |
| 88-06-2-----2,4,6-Trichlorophenol | 12000. |     |
| 95-95-4-----2,4,5-Trichlorophenol | 13000. |     |
| 121-14-2-----2,4-Dinitrotoluene   | 12000. |     |
| 118-74-1-----Hexachlorobenzene    | 9000.  |     |
| 87-86-5-----Pentachlorophenol     | 4900.  | J   |

(1) - Cannot be separated from Diphenylamine

1B  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1443-3

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER

Lab Sample ID: 1443-3

Sample wt/vol: 100.0 (g/ml) ML

Lab File ID: ED630

Level: (low/med) LOW

Date Received: 2/06/93

% Moisture: decanted: (Y/N)

Date Extracted: 2/10/93

Concentrated Extract Volume: 1000.0 (uL)

Date Analyzed: 2/17/93

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 0.0

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L Q

|               |                       |      |     |
|---------------|-----------------------|------|-----|
| 110-86-1----- | Pyridine              | 200. | U B |
| 106-46-7----- | 1,4-Dichlorobenzene   | 200. | U B |
| 35-48-7-----  | 2-Methylphenol        | 200. | U   |
| 108-60-1----- | 3-Methylphenol        | 200. | U   |
| 106-44-5----- | 4-Methylphenol        | 200. | U   |
| 67-72-1-----  | Hexachloroethane      | 200. | U   |
| 98-95-3-----  | Nitrobenzene          | 200. | U   |
| 87-68-3-----  | Hexachlorobutadiene   | 200. | U   |
| 88-06-2-----  | 2,4,6-Trichlorophenol | 200. | U   |
| 95-95-4-----  | 2,4,5-Trichlorophenol | 500. | U   |
| 121-14-2----- | 2,4-Dinitrotoluene    | 200. | U   |
| 118-74-1----- | Hexachlorobenzene     | 200. | U   |
| 87-86-5-----  | Pentachlorophenol     | 500. | U   |

(1) - Cannot be separated from Diphenylamine

1B  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1443-1

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER Lab Sample ID: 1443-1

Sample wt/vol: 10.0 (g/ml) ML Lab File ID: ED629

Level: (low/med) LOW Date Received: 2/06/93 ✓

% Moisture: decanted: (Y/N) Date Extracted: 2/10/93 ✓

Concentrated Extract Volume: 1000.0 (uL) Date Analyzed: 2/17/93 ✓

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 0.0

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L Q

|                                   |       |     |
|-----------------------------------|-------|-----|
| 110-86-1-----Pyridine             | 2000. | U B |
| 106-46-7-----1,4-Dichlorobenzene  | 2000. | U B |
| 95-48-7-----2-Methylphenol        | 2000. | U   |
| 108-60-1-----3-Methylphenol       | 2000. | U   |
| 106-44-5-----4-Methylphenol       | 2000. | U   |
| 67-72-1-----Hexachloroethane      | 2000. | U   |
| 98-95-3-----Nitrobenzene          | 2000. | U   |
| 87-68-3-----Hexachlorobutadiene   | 2000. | U   |
| 88-06-2-----2,4,6-Trichlorophenol | 2000. | U   |
| 95-95-4-----2,4,5-Trichlorophenol | 5000. | U   |
| 121-14-2-----2,4-Dinitrotoluene   | 2000. | U   |
| 118-74-1-----Hexachlorobenzene    | 2000. | U   |
| 87-86-5-----Pentachlorophenol     | 5000. | U   |

(1) - Cannot be separated from Diphenylamine

1B  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK

Lab Name: NDRC LABORATORIES, INC.      Contract: 0

Lab Code: 0      Case No.:      SAS No.:      SDG No.: P1443

Matrix: (soil/water) WATER      Lab Sample ID: ABN BLANK

Sample wt/vol: 1000.0 (g/ml) ML      Lab File ID: ED595

Level: (low/med) LOW      Date Received: / /

% Moisture:      decanted: (Y/N)      Date Extracted: 2/10/93

Concentrated Extract Volume: 1000.0 (uL)      Date Analyzed: 2/15/93

Injection Volume: 1.0 (uL)      Dilution Factor: 1.0

GPC Cleanup: (Y/N) N      pH: 0.0

CAS NO.      COMPOUND      CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L      Q

|               |                       |     |   |
|---------------|-----------------------|-----|---|
| 110-86-1----- | Pyridine              | 20. | U |
| 106-46-7----- | 1,4-Dichlorobenzene   | 20. | U |
| 95-48-7-----  | 2-Methylphenol        | 20. | U |
| 108-60-1----- | 3-Methylphenol        | 20. | U |
| 106-44-5----- | 4-Methylphenol        | 20. | U |
| 67-72-1-----  | Hexachloroethane      | 20. | U |
| 98-95-3-----  | Nitrobenzene          | 20. | U |
| 87-68-3-----  | Hexachlorobutadiene   | 20. | U |
| 88-06-2-----  | 2,4,6-Trichlorophenol | 20. | U |
| 95-95-4-----  | 2,4,5-Trichlorophenol | 50. | U |
| 121-14-2----- | 2,4-Dinitrotoluene    | 20. | U |
| 118-74-1----- | Hexachlorobenzene     | 20. | U |
| 87-86-5-----  | Pentachlorophenol     | 50. | U |

(1) - Cannot be separated from Diphenylamine

1B  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SLCS

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Matrix: (soil/water) WATER

Lab Sample ID: ABN LCS

Sample wt/vol: 1000.0 (g/ml) ML

Lab File ID: ED596

Level: (low/med) LOW

Date Received: / /

% Moisture: decanted: (Y/N)

Date Extracted: 2/10/93 ✓

Concentrated Extract Volume: 1000.0 (uL)

Date Analyzed: 2/15/93 ✓

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 0.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L

Q

|               |                       |      |   |
|---------------|-----------------------|------|---|
| 110-86-1----- | Pyridine              | 36.✓ | B |
| 106-46-7----- | 1,4-Dichlorobenzene   | 68.✓ | B |
| 95-48-7-----  | 2-Methylphenol        | 70.✓ |   |
| 108-60-1----- | 3-Methylphenol        | 71.✓ |   |
| 106-44-5----- | 4-Methylphenol        | 71.✓ |   |
| 67-72-1-----  | Hexachloroethane      | 72.✓ |   |
| 98-95-3-----  | Nitrobenzene          | 74.✓ |   |
| 87-68-3-----  | Hexachlorobutadiene   | 75.✓ |   |
| 88-06-2-----  | 2,4,6-Trichlorophenol | 71.✓ |   |
| 95-95-4-----  | 2,4,5-Trichlorophenol | 74.✓ |   |
| 121-14-2----- | 2,4-Dinitrotoluene    | 70.✓ |   |
| 118-74-1----- | Hexachlorobenzene     | 75.✓ |   |
| 87-86-5-----  | Pentachlorophenol     | 86.✓ |   |

(1) - Cannot be separated from Diphenylamine

*How much spiked?*

*if spiked  
is for all  
conc = 2 loc*

2C  
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: NDRC LABORATORIES, INC.

Contract: 0

Lab Code: 0

Case No.:

SAS No.:

SDG No.: P1443

|    | EPA<br>SAMPLE NO. | S1<br>(NBZ) # | S2<br>(FBP) # | S3<br>(TPH) # | S4<br>(PHL) #   | S5<br>(2FP) # | S6<br>(TBP) # | S7<br>(2CP) # | S8<br>(DCB) # | TOT<br>OUT |
|----|-------------------|---------------|---------------|---------------|-----------------|---------------|---------------|---------------|---------------|------------|
| 01 | 1443-1            | 88            | 94            | 92            | 47              | 76            | 98            | 0             | 0             | 0          |
| 02 | 1443-1MS          | 86            | 110           | 98            | 95*             | 99            | 98            | 0             | 0             | 0          |
| 03 | 1443-1MSD         | 86            | 94            | 92            | 82              | 92            | 98            | 0             | 0             | 0          |
| 04 | 1443-3            | 84            | 94            | 96            | 80              | 92            | 100           | 0             | 0             | 0          |
| 05 | SBLK              | 80            | 62            | 68            | 62              | 73            | 75            | 0             | 0             | 0          |
| 06 | SLCS              | 82            | 70            | 68            | 70              | 73            | 86            | 0             | 0             | 0          |
| 07 |                   |               |               |               |                 |               |               |               |               |            |
| 08 |                   |               |               |               |                 |               |               |               |               |            |
| 09 |                   |               |               |               |                 |               |               |               |               |            |
| 10 |                   |               |               |               |                 |               |               |               |               |            |
| 11 |                   | ✓             | ✓             | ✓             | ✓               | ✓             | ✓             |               |               |            |
| 12 |                   |               |               |               |                 |               |               |               |               |            |
| 13 |                   |               |               |               |                 |               |               |               |               |            |
| 14 |                   |               |               |               | <i>marginal</i> |               |               |               |               |            |
| 15 |                   |               |               |               |                 |               |               |               |               |            |
| 16 |                   |               |               |               |                 |               |               |               |               |            |
| 17 |                   |               |               |               |                 |               |               |               |               |            |
| 18 |                   |               |               |               |                 |               |               |               |               |            |
| 19 |                   |               |               |               |                 |               |               |               |               |            |
| 20 |                   |               |               |               |                 |               |               |               |               |            |
| 21 |                   |               |               |               |                 |               |               |               |               |            |
| 22 |                   |               |               |               |                 |               |               |               |               |            |
| 23 |                   |               |               |               |                 |               |               |               |               |            |
| 24 |                   |               |               |               |                 |               |               |               |               |            |
| 25 |                   |               |               |               |                 |               |               |               |               |            |
| 26 |                   |               |               |               |                 |               |               |               |               |            |
| 27 |                   |               |               |               |                 |               |               |               |               |            |
| 28 |                   |               |               |               |                 |               |               |               |               |            |
| 29 |                   |               |               |               |                 |               |               |               |               |            |
| 30 |                   |               |               |               |                 |               |               |               |               |            |

|                                   |           |            |
|-----------------------------------|-----------|------------|
| S1 (NBZ) = Nitrobenzene-d5        | QC LIMITS |            |
| S2 (FBP) = 2-Fluorobiphenyl       | (40-150)  | 35-114     |
| S3 (TPH) = Terphenyl-d14          | (40-150)  | 43-116     |
| S4 (PHL) = Phenol-d5              | (33-141)  | 33-141     |
| S5 (2FP) = 2-Fluorophenol         | (10-110)  | 10-94      |
| S6 (TBP) = 2,4,6-Tribromophenol   | (21-110)  | 21-100     |
| S7 (2CP) = 2-Chlorophenol-d4      | (10-123)  | 10-123     |
| S8 (DCB) = 1,2-Dichlorobenzene-d4 | (0-0)     | (advisory) |
|                                   | (0-0)     | (advisory) |

# Column to be used to flag recovery values  
 \* Values outside of contract required QC limits  
 D Surrogate diluted out

## WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name:NDRC LABORATORIES, INC.

Contract:0

Lab Code:0

Case No.:

SAS No.:

SDG No.:P1443

Matrix Spike - EPA Sample No.: 1443-1

| COMPOUND              | SPIKE<br>ADDED<br>(ug/L) | SAMPLE<br>CONCENTRATION<br>(ug/L) | MS<br>CONCENTRATION<br>(ug/L) | MS<br>%<br>REC # | QC.<br>LIMITS<br>REC. |
|-----------------------|--------------------------|-----------------------------------|-------------------------------|------------------|-----------------------|
| Pyridine              | 10000.                   | 0.                                | 0.                            | 0*               | 30-130                |
| 2-Methylphenol        | 10000.                   | 0.                                | 9200.                         | 92               | 40-150                |
| 3-Methylphenol        | 10000.                   | 0.                                | 9300.                         | 93               | 40-150                |
| 4-Methylphenol        | 10000.                   | 0.                                | 9700.                         | 97               | 40-150                |
| Hexachloroethane      | 10000.                   | 0.                                | 7400.                         | 74               | 40-150                |
| Nitrobenzene          | 10000.                   | 0.                                | 8000.                         | 80               | 40-150                |
| Hexachlorobutadiene   | 10000.                   | 0.                                | 8400.                         | 84               | 40-150                |
| 2,4,6-Trichlorophenol | 10000.                   | 0.                                | 12000.                        | 120              | 40-150                |
| 2,4,5-Trichlorophenol | 10000.                   | 0.                                | 13000.                        | 130              | 40-150                |
| 2,4-Dinitrotoluene    | 10000.                   | 0.                                | 12000.                        | 120              | 40-150                |
| Hexachlorobenzene     | 10000.                   | 0.                                | 9000.                         | 90               | 40-150                |
| Pentachlorophenol     | 10000.                   | 0.                                | 4900.                         | 49               | 20-130                |

40-113  
35-180  
24-116  
37-144  
39-139  
D-152  
14-176

| COMPOUND              | SPIKE<br>ADDED<br>(ug/L) | MSD<br>CONCENTRATION<br>(ug/L) | MSD<br>%<br>REC # | %<br>RPD # | QC LIMITS<br>RPD REC. |
|-----------------------|--------------------------|--------------------------------|-------------------|------------|-----------------------|
| Pyridine              | 10000.                   | 0.                             | 0*                | 0          | 40 30-130             |
| 2-Methylphenol        | 10000.                   | 8300.                          | 83                | 10         | 40 40-150             |
| 3-Methylphenol        | 10000.                   | 8300.                          | 83                | 11         | 40 40-150             |
| 4-Methylphenol        | 10000.                   | 8700.                          | 87                | 11         | 40 40-150             |
| Hexachloroethane      | 10000.                   | 8000.                          | 80                | 8          | 40 40-150             |
| Nitrobenzene          | 10000.                   | 8200.                          | 82                | 2          | 40 40-150             |
| Hexachlorobutadiene   | 10000.                   | 8200.                          | 82                | 2          | 40 40-150             |
| 2,4,6-Trichlorophenol | 10000.                   | 8700.                          | 87                | 32         | 40 40-150             |
| 2,4,5-Trichlorophenol | 10000.                   | 10000.                         | 100               | 26         | 40 40-150             |
| 2,4-Dinitrotoluene    | 10000.                   | 9500.                          | 95                | 23         | 40 40-150             |
| Hexachlorobenzene     | 10000.                   | 9100.                          | 91                | 1          | 40 40-150             |
| Pentachlorophenol     | 10000.                   | 3800.                          | 38                | 25         | 40 20-130             |

40-113  
35-180  
24-116  
37-144  
39-139  
D-152  
14-176

(1) N-Nitroso-di-n-propylamine

# Column to be used to flag recovery and RPD values with an asterisk  
\* Values outside of QC limits

RPD: 0 out of 12 outside limits  
Spike Recovery: 2 out of 24 outside limits

COMMENTS:

177

5B  
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Lab File ID: ED436 ✓ DFTPP Injection Date: 2/03/93 ✓

Instrument ID: ABN5 DFTPP Injection Time: 0750 ✓

| m/e | ION ABUNDANCE CRITERIA                           | % RELATIVE ABUNDANCE |
|-----|--|----------------------|
| 51  | 30.0 - <del>20.0</del> 30-60% of mass 198 ✓      | 39.0 ✓               |
| 68  | Less than 2.0% of mass 69 ✓                      | 0.0 ( 0.0 ) 1        |
| 69  | Mass 69 relative abundance ✓                     | 52.8 ✓               |
| 70  | Less than 2.0% of mass 69 ✓                      | 0.0 ( 0.0 ) 1        |
| 127 | <del>25.0</del> 40-60% of mass 198 ✓             | 48.6 ✓               |
| 197 | Less than 1.0% of mass 198 ✓                     | 0.4 ✓                |
| 198 | Base Peak, 100% relative abundance ✓             | 100.0                |
| 199 | 5.0 to 9.0% of mass 198 ✓                        | 7.7 ✓                |
| 275 | 10.0 - 30.0% of mass 198 ✓                       | 22.9 ✓               |
| 365 | Greater than <del>0.75</del> 2.90% of mass 198 ✓ | 2.90 ✓               |
| 441 | Present, but less than mass 443 ✓                | 13.1 ✓               |
| 442 | 40.0 - 110.0% of mass 198 >40% ✓                 | 97.6 ✓               |
| 443 | 15.0 - 24.0% of mass 442 17-23% ✓                | 19.7 ( 20.2 ) 2      |

1-Value is % mass 69

2-Value is % mass 442 ✓

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS, AND STANDARDS:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | DATE<br>ANALYZED | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|------------------|
| 01 | SSTD020TCLP       | ED438            | ED438          | 2/03/93          | 1004             |
| 02 | SSTD050TCLP       | ED439            | ED439          | 2/03/93          | 1052             |
| 03 | SSTD080TCLP       | ED440            | ED440          | 2/03/93          | 1141             |
| 04 | SSTD120TCLP       | ED441            | ED441          | 2/03/93          | 1229             |
| 05 | SSTD160TCLP       | ED442            | ED442          | 2/03/93          | 1318             |
| 06 |                   |                  |                |                  |                  |
| 07 |                   |                  |                |                  |                  |
| 08 |                   |                  |                |                  |                  |
| 09 |                   |                  |                |                  |                  |
| 10 |                   |                  |                |                  |                  |
| 11 |                   |                  |                |                  |                  |
| 12 |                   |                  |                |                  |                  |
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| 14 |                   |                  |                |                  |                  |
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| 18 |                   |                  |                |                  |                  |
| 19 |                   |                  |                |                  |                  |
| 20 |                   |                  |                |                  |                  |
| 21 |                   |                  |                |                  |                  |
| 22 |                   |                  |                |                  |                  |

4B  
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK

Lab Name:NDRC LABORATORIES, INC. Contract:0

Lab Code:0 Case No.: SAS No.: SDG No.:P1443

Lab File ID:ED595 Lab Sample ID:ABN BLANK

Instrument ID:ABN5 Date Extracted: 2/10/93

Matrix: (soil/water) WATER Date Analyzed: 2/15/93

Level:(low/med) LOW Time Analyzed: 2200

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | DATE<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|
| 01 | 1443-1            | 1443-1           | ED629          | 2/17/93          |
| 02 | 1443-1MS          | 1443-1MS         | ED627          | 2/17/93          |
| 03 | 1443-1MSD         | 1443-1MSD        | ED628          | 2/17/93          |
| 04 | 1443-3            | 1443-3           | ED630          | 2/17/93          |
| 05 | SLCS              | ABN LCS          | ED596          | 2/15/93          |
| 06 |                   |                  |                |                  |
| 07 |                   |                  |                |                  |
| 08 |                   |                  |                |                  |
| 09 |                   |                  |                |                  |
| 10 |                   |                  |                |                  |
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| 16 |                   |                  |                |                  |
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| 18 |                   |                  |                |                  |
| 19 |                   |                  |                |                  |
| 20 |                   |                  |                |                  |
| 21 |                   |                  |                |                  |
| 22 |                   |                  |                |                  |
| 23 |                   |                  |                |                  |
| 24 |                   |                  |                |                  |
| 25 |                   |                  |                |                  |
| 26 |                   |                  |                |                  |
| 27 |                   |                  |                |                  |
| 28 |                   |                  |                |                  |
| 29 |                   |                  |                |                  |
| 30 |                   |                  |                |                  |

COMMENTS:

5B  
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Lab File ID: ED586 ✓ DFTPP Injection Date: 2/15/93 ✓

Instrument ID: ABN5 ✓ DFTPP Injection Time: 1456 ✓

| m/e | ION ABUNDANCE CRITERIA             | % RELATIVE ABUNDANCE |
|-----|------------------------------------|----------------------|
| 51  | 30.0 - 80.0% of mass 198           | 45.4 ✓               |
| 68  | Less than 2.0% of mass 69          | 0.0 ( 0.0 ) 1        |
| 69  | Mass 69 relative abundance         | 61.1 ✓               |
| 70  | Less than 2.0% of mass 69          | 0.3 ( 0.5 ) 1        |
| 127 | 25.0 - 75.0% of mass 198           | 43.3 ✓               |
| 197 | Less than 1.0% of mass 198         | 0.0                  |
| 198 | Base Peak, 100% relative abundance | 100.0                |
| 199 | 5.0 to 9.0% of mass 198            | 6.4 ✓                |
| 275 | 10.0 - 30.0% of mass 198           | 21.8 ✓               |
| 365 | Greater than 0.75% of mass 198     | 2.30 ✓               |
| 441 | Present, but less than mass 443    | 9.4 ✓                |
| 442 | 40.0 - 110.0% of mass 198          | 72.7 ✓               |
| 443 | 15.0 - 24.0% of mass 442           | 13.4 ✓ 18.4 ✓ 2      |

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS, AND STANDARDS:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | DATE<br>ANALYZED | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|------------------|
| 01 | SSTD050A          | DAILY CALIB      | ED589          | 2/15/93          | 1705             |
| 02 | SBLK              | ABN BLANK        | ED595          | 2/15/93          | 2200             |
| 03 | SLCS              | ABN LCS          | ED596          | 2/15/93          | 2249             |
| 04 |                   |                  |                |                  |                  |
| 05 |                   |                  |                |                  |                  |
| 06 |                   |                  |                |                  |                  |
| 07 |                   |                  |                |                  |                  |
| 08 |                   |                  |                |                  |                  |
| 09 |                   |                  |                |                  |                  |
| 10 |                   |                  |                |                  |                  |
| 11 |                   |                  |                |                  |                  |
| 12 |                   |                  |                |                  |                  |
| 13 |                   |                  |                |                  |                  |
| 14 |                   |                  |                |                  |                  |
| 15 |                   |                  |                |                  |                  |
| 16 |                   |                  |                |                  |                  |
| 17 |                   |                  |                |                  |                  |
| 18 |                   |                  |                |                  |                  |
| 19 |                   |                  |                |                  |                  |
| 20 |                   |                  |                |                  |                  |
| 21 |                   |                  |                |                  |                  |
| 22 |                   |                  |                |                  |                  |

5B  
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: NDRC LABORATORIES, INC. Contract: 0

Lab Code: 0 Case No.: SAS No.: SDG No.: P1443

Lab File ID: ED623 DFTPP Injection Date: 2/17/93

Instrument ID: ABN5 DFTPP Injection Time: 1542

| m/e | ION ABUNDANCE CRITERIA             | % RELATIVE ABUNDANCE |
|-----|------------------------------------|----------------------|
| 51  | 30.0 - 80.0% of mass 198           | 48.9                 |
| 68  | Less than 2.0% of mass 69          | 0.0 ( 0.0) 1         |
| 69  | Mass 69 relative abundance         | 62.1                 |
| 70  | Less than 2.0% of mass 69          | 0.3 ( 0.5) 1         |
| 127 | 25.0 - 75.0% of mass 198           | 44.6                 |
| 197 | Less than 1.0% of mass 198         | 0.0                  |
| 198 | Base Peak, 100% relative abundance | 100.0                |
| 199 | 5.0 to 9.0% of mass 198            | 6.4                  |
| 275 | 10.0 - 30.0% of mass 198           | 23.1                 |
| 365 | Greater than 0.75% of mass 198     | 2.60                 |
| 441 | Present, but less than mass 443    | 11.5                 |
| 442 | 40.0 - 110.0% of mass 198          | 85.6                 |
| 443 | 15.0 - 24.0% of mass 442           | 16.0 ( 18.7) 2       |

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS, AND STANDARDS:

|    | EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | DATE<br>ANALYZED | TIME<br>ANALYZED |
|----|-------------------|------------------|----------------|------------------|------------------|
| 01 | SSTD050B          | DAILY CALIB      | ED624          | 2/17/93          | 1606             |
| 02 | 1443-1MS          | 1443-1MS         | ED627          | 2/17/93          | 1831             |
| 03 | 1443-1MSD         | 1443-1MSD        | ED628          | 2/17/93          | 1919             |
| 04 | 1443-1            | 1443-1           | ED629          | 2/17/93          | 2007             |
| 05 | 1443-3            | 1443-3           | ED630          | 2/17/93          | 2055             |
| 06 |                   |                  |                |                  |                  |
| 07 |                   |                  |                |                  |                  |
| 08 |                   |                  |                |                  |                  |
| 09 |                   |                  |                |                  |                  |
| 10 |                   |                  |                |                  |                  |
| 11 |                   |                  |                |                  |                  |
| 12 |                   |                  |                |                  |                  |
| 13 |                   |                  |                |                  |                  |
| 14 |                   |                  |                |                  |                  |
| 15 |                   |                  |                |                  |                  |
| 16 |                   |                  |                |                  |                  |
| 17 |                   |                  |                |                  |                  |
| 18 |                   |                  |                |                  |                  |
| 19 |                   |                  |                |                  |                  |
| 20 |                   |                  |                |                  |                  |
| 21 |                   |                  |                |                  |                  |
| 22 |                   |                  |                |                  |                  |

6B  
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: NDRC LABORATORIES, INC.

Contract: 0

Lab Code: 0

Case No.:

SAS No.:

SDG No.: P1443

Instrument ID: ABN5

Calibration Date(s): 2/03/93 2/03/93

Calibration Times: 1004 1318

LAB FILE ID:  
RRF80 =ED440

RRF20 =ED438  
RRF120=ED441

RRF50 =ED439  
RRF160=ED442

| COMPOUND              | RRF20   | RRF50 | RRF80 | RRF120 | RRF160 | RRF   | %<br>RSD |
|-----------------------|---------|-------|-------|--------|--------|-------|----------|
| Pyridine              | * 1.216 | 1.368 | 1.310 | 1.449  | 1.461  | 1.361 | 7.5 *    |
| 1,4-Dichlorobenzene   | * 1.722 | 1.719 | 1.674 | 1.709  | 1.636  | 1.692 | 2.2 *    |
| 2-Methylphenol        | * 1.196 | 1.392 | 1.444 | 1.451  | 1.407  | 1.378 | 7.6 *    |
| 3-Methylphenol        | 2.245   | 2.595 | 2.568 | 2.767  | 2.770  | 2.589 | 8.3      |
| 4-Methylphenol        | * 2.450 | 2.635 | 2.872 | 3.091  | 2.982  | 2.806 | 9.3 *    |
| Hexachloroethane      | * 0.257 | 0.251 | 0.249 | 0.243  | 0.223  | 0.245 | 5.3 *    |
| Nitrobenzene          | * 0.519 | 0.545 | 0.558 | 0.618  | 0.515  | 0.551 | 7.5 *    |
| Hexachlorobutadiene   | 0.215   | 0.210 | 0.216 | 0.203  | 0.190  | 0.207 | 5.2      |
| 2,4,6-Trichlorophenol | * 0.407 | 0.460 | 0.455 | 0.473  | 0.465  | 0.452 | 5.8 *    |
| 2,4,5-Trichlorophenol | * 0.413 | 0.491 | 0.506 | 0.497  | 0.510  | 0.483 | 8.3 *    |
| 2,4-Dinitrotoluene    | * 0.439 | 0.495 | 0.544 | 0.556  | 0.548  | 0.516 | 9.6 *    |
| Hexachlorobenzene     | * 0.303 | 0.320 | 0.333 | 0.341  | 0.311  | 0.322 | 4.8 *    |
| Pentachlorophenol     | * 0.150 | 0.189 | 0.214 | 0.220  | 0.184  | 0.191 | 14.6 *   |
| Nitrobenzene-d5       | * 0.464 | 0.501 | 0.559 | 0.544  | 0.525  | 0.519 | 7.2 *    |
| 2-Fluorobiphenyl      | * 1.321 | 1.392 | 1.462 | 1.424  | 1.302  | 1.380 | 4.9 *    |
| Terphenyl-d14         | * 1.085 | 1.091 | 1.177 | 1.181  | 1.162  | 1.139 | 4.2 *    |
| Phenol-d6             | * 1.579 | 1.872 | 1.914 | 2.032  | 1.874  | 1.854 | 9.0 *    |
| 2-Fluorophenol        | * 1.454 | 1.576 | 1.330 | 1.307  | 1.341  | 1.402 | 8.0 *    |
| 2,4,6-Tribromophenol  | 0.124   | 0.153 | 0.160 | 0.159  | 0.143  | 0.148 | 10.1     |

(1) Cannot be separated from Diphenylamine

20%

\* Compounds with required minimum RRF and maximum %RSD values.  
All other compounds must meet a minimum RRF of 0.010.

7B  
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: NDRC LABORATORIES, INC.      Contract: 0  
 Lab Code: 0      Case No.:      SAS No.:      SDG No.: P1443  
 Instrument ID: ABN5      Calibration Date: 2/15/93      Time: 1705  
 Lab File ID: ED589      Init. Calib. Date(s): 2/03/93      2/03/93  
    Init. Calib. Times: 1004      1318

|     | COMPOUND              | RRF   | RRF50 | MIN RRF | %D    | MAX %D |
|-----|-----------------------|-------|-------|---------|-------|--------|
|     | =====                 | ===== | ===== | =====   | ===== | =====  |
|     | Pyridine              | 1.361 | 1.369 | 0.800   | 0.6   |        |
| ccc | 1,4-Dichlorobenzene   | 1.692 | 1.612 | 0.500   | 4.7   | 25.0   |
|     | 2-Methylphenol        | 1.378 | 1.135 | 0.700   | 17.6  | 25.0   |
|     | 3-Methylphenol        | 2.589 | 2.233 |         | 13.8  |        |
|     | 4-Methylphenol        | 2.806 | 2.550 | 0.600   | 9.1   | 25.0   |
|     | Hexachloroethane      | 0.245 | 0.257 | 0.300   | 4.9   | 25.0   |
|     | Nitrobenzene          | 0.551 | 0.577 | 0.200   | 4.7   | 25.0   |
| ccc | Hexachlorobutadiene   | 0.207 | 0.281 | 0.050   | 35.7  |        |
| ccc | 2,4,6-Trichlorophenol | 0.452 | 0.510 | 0.200   | 12.8  | 25.0   |
|     | 2,4,5-Trichlorophenol | 0.483 | 0.521 | 0.200   | 7.9   | 25.0   |
|     | 2,4-Dinitrotoluene    | 0.516 | 0.513 | 0.200   | 0.6   | 25.0   |
|     | Hexachlorobenzene     | 0.322 | 0.256 | 0.100   | 20.5  | 25.0   |
| ccc | Pentachlorophenol     | 0.191 | 0.166 | 0.050   | 13.1  | 25.0   |
|     | =====                 | ===== | ===== | =====   | ===== | =====  |
|     | Nitrobenzene-d5       | 0.519 | 0.510 | 0.200   | 1.7   | 25.0   |
|     | 2-Fluorobiphenyl      | 1.380 | 1.413 | 0.700   | 2.4   | 25.0   |
|     | Terphenyl-d14         | 1.139 | 1.295 | 0.500   | 13.7  | 25.0   |
|     | Phenol-d6             | 1.854 | 1.584 | 0.800   | 14.7  | 25.0   |
|     | 2-Fluorophenol        | 1.402 | 1.351 | 0.600   | 3.6   | 25.0   |
|     | 2,4,6-Tribromophenol  | 0.148 | 0.176 |         | 18.9  |        |

(1) Cannot be separated from Diphenylamine

*failed  
5x not  
effected*

*70 for ccc must be < 30%.*

All other compounds must meet a minimum RRF of 0.010

7B  
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: NDRC LABORATORIES, INC.      Contract: 0  
 Lab Code: 0      Case No.:      SAS No.:      SDG No.: P1443  
 Instrument ID: ABN5      Calibration Date: 2/17/93      Time: 1606 ✓  
 Lab File ID: ED624      Init. Calib. Date(s): 2/03/93      2/03/93  
    Init. Calib. Times: 1004      1318 ✓

| COMPOUND              | RRF   | RRF50 | MIN RRF | %D   | MAX %D |
|-----------------------|-------|-------|---------|------|--------|
| Pyridine              | 1.361 | 1.187 | 0.800   | 12.8 |        |
| 1,4-Dichlorobenzene   | 1.692 | 1.731 | 0.500   | 2.3  | 25.0   |
| 2-Methylphenol        | 1.378 | 1.124 | 0.700   | 18.4 | 25.0   |
| 3-Methylphenol        | 2.589 | 2.010 |         | 22.4 |        |
| 4-Methylphenol        | 2.806 | 2.155 | 0.600   | 23.2 | 25.0   |
| Hexachloroethane      | 0.245 | 0.244 | 0.300   | 0.4  | 25.0   |
| Nitrobenzene          | 0.551 | 0.506 | 0.200   | 8.2  | 25.0   |
| Hexachlorobutadiene   | 0.207 | 0.262 |         | 26.6 |        |
| 2,4,6-Trichlorophenol | 0.452 | 0.468 | 0.200   | 3.5  | 25.0   |
| 2,4,5-Trichlorophenol | 0.483 | 0.441 | 0.200   | 8.7  | 25.0   |
| 2,4-Dinitrotoluene    | 0.516 | 0.528 | 0.200   | 2.3  | 25.0   |
| Hexachlorobenzene     | 0.322 | 0.252 | 0.100   | 21.7 | 25.0   |
| Pentachlorophenol     | 0.191 | 0.178 | 0.050   | 6.8  | 25.0   |
| Nitrobenzene-d5       | 0.519 | 0.488 | 0.200   | 6.0  | 25.0   |
| 2-Fluorobiphenyl      | 1.380 | 1.490 | 0.700   | 8.0  | 25.0   |
| Terphenyl-d14         | 1.139 | 1.296 | 0.500   | 13.8 | 25.0   |
| Phenol-d6             | 1.854 | 1.374 | 0.800   | 25.9 | 25.0   |
| 2-Fluorophenol        | 1.402 | 1.273 | 0.600   | 9.2  | 25.0   |
| 2,4,6-Tribromophenol  | 0.148 | 0.156 |         | 5.4  |        |

(1) Cannot be separated from Diphenylamine

✓  
 23%  
 2% is warning

All other compounds must meet a minimum RRF of 0.010

8B

## SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name:NDRC LABORATORIES, INC.

Contract:0

Lab Code:0

Case No.:

SAS No.:

SDG No.:P1443

Lab File ID: (Standard):ED589

Date Analyzed: 2/15/93

Instrument ID:ABN5

Time Analyzed:1705

|                | IS1 (DCB) | RT #  | IS2 (NPT) | RT #  | IS3 (ANT) | RT #  |
|----------------|-----------|-------|-----------|-------|-----------|-------|
|                | AREA #    |       | AREA #    |       | AREA #    |       |
| =====          | =====     | ===== | =====     | ===== | =====     | ===== |
| 12 HOUR STD    | 91684     | 9.52  | 304020    | 12.69 | 186407    | 17.15 |
| UPPER LIMIT    | 183368    | 10.02 | 608040    | 13.19 | 372814    | 17.65 |
| LOWER LIMIT    | 45842     | 9.02  | 152010    | 12.19 | 93204     | 16.65 |
| =====          | =====     | ===== | =====     | ===== | =====     | ===== |
| EPA SAMPLE NO. |           |       |           |       |           |       |
| =====          | =====     | ===== | =====     | ===== | =====     | ===== |
| 01 SBLK        | 90888     | 9.51  | 285264    | 12.68 | 200614    | 17.13 |
| 02 SLCS        | 90028     | 9.51  | 287745    | 12.67 | 189478    | 17.13 |
| 03             |           |       |           |       |           |       |
| 04             |           |       |           |       |           |       |
| 05             |           |       |           |       |           |       |
| 06             |           |       |           |       |           |       |
| 07             |           |       |           |       |           |       |
| 08             |           |       |           |       |           |       |
| 09             |           |       |           |       |           |       |
| 10             |           |       |           |       |           |       |
| 11             |           |       |           |       |           |       |
| 12             |           |       |           |       |           |       |
| 13             |           |       |           |       |           |       |
| 14             |           |       |           |       |           |       |
| 15             |           |       |           |       |           |       |
| 16             |           |       |           |       |           |       |
| 17             |           |       |           |       |           |       |
| 18             |           |       |           |       |           |       |
| 19             |           |       |           |       |           |       |
| 20             |           |       |           |       |           |       |
| 21             |           |       |           |       |           |       |
| 22             |           |       |           |       |           |       |

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside of QC limits with an asterisk.

\* Values outside of QC limits.

8C  
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name:NDRC LABORATORIES, INC.      Contract:0  
 Lab Code:0      Case No.:      SAS No.:      SDG No.:P1443  
 Lab File ID: (Standard):ED589      Date Analyzed: 2/15/93  
 Instrument ID:ABN5      Time Analyzed:1705

|                   | IS4 (PHN)<br>AREA # | RT #  | IS5 (CRY)<br>AREA # | RT #  | IS6 (PRY)<br>AREA # | RT #  |
|-------------------|---------------------|-------|---------------------|-------|---------------------|-------|
| =====             | =====               | ===== | =====               | ===== | =====               | ===== |
| 12 HOUR STD       | 342832              | 20.83 | 278266              | 27.53 | 209870              | 30.94 |
| UPPER LIMIT       | 685664              | 21.33 | 556532              | 28.03 | 419740              | 31.44 |
| LOWER LIMIT       | 171416              | 20.33 | 139133              | 27.03 | 104935              | 30.44 |
| =====             | =====               | ===== | =====               | ===== | =====               | ===== |
| EPA SAMPLE<br>NO. |                     |       |                     |       |                     |       |
| =====             | =====               | ===== | =====               | ===== | =====               | ===== |
| 01 SBLK           | 369277              | 20.81 | 308040              | 27.53 | 266257              | 30.93 |
| 02 SLCS           | 330042              | 20.83 | 305319              | 27.51 | 267250              | 30.93 |
| 03                |                     |       |                     |       |                     |       |
| 04                |                     |       |                     |       |                     |       |
| 05                |                     |       |                     |       |                     |       |
| 06                | /                   | /     | /                   | /     | /                   | /     |
| 07                |                     |       |                     |       |                     |       |
| 08                |                     |       |                     |       |                     |       |
| 09                |                     |       |                     |       |                     |       |
| 10                |                     |       |                     |       |                     |       |
| 11                |                     |       |                     |       |                     |       |
| 12                |                     |       |                     |       |                     |       |
| 13                |                     |       |                     |       |                     |       |
| 14                |                     |       |                     |       |                     |       |
| 15                |                     |       |                     |       |                     |       |
| 16                |                     |       |                     |       |                     |       |
| 17                |                     |       |                     |       |                     |       |
| 18                |                     |       |                     |       |                     |       |
| 19                |                     |       |                     |       |                     |       |
| 20                |                     |       |                     |       |                     |       |
| 21                |                     |       |                     |       |                     |       |
| 22                |                     |       |                     |       |                     |       |

IS4 (PHN) = Phenanthrene-d10  
 IS5 (CRY) = Chrysene-d12  
 IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area  
 AREA LOWER LIMIT = - 50% of internal standard area  
 RT UPPER LIMIT = +0.50 minutes of internal standard RT  
 RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside of QC limits with an asterisk.  
 \* Values outside of QC limits.

## SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name:NDRC LABORATORIES, INC.

Contract:0

Lab Code:0

Case No.:

SAS No.:

SDG No.:P1443

Lab File ID: (Standard):ED624

Date Analyzed: 2/17/93

Instrument ID:ABN5

Time Analyzed:1606

|                   | IS1 (DCB)<br>AREA # | RT #  | IS2 (NPT)<br>AREA # | RT #  | IS3 (ANT)<br>AREA # | RT #  |
|-------------------|---------------------|-------|---------------------|-------|---------------------|-------|
| =====             | =====               | ===== | =====               | ===== | =====               | ===== |
| 12 HOUR STD       | 150063              | 9.28  | 537006              | 12.43 | 330405              | 16.89 |
| UPPER LIMIT       | 300126              | 9.78  | 1074012             | 12.93 | 660810              | 17.39 |
| LOWER LIMIT       | 75032               | 8.78  | 268503              | 11.93 | 165203              | 16.39 |
| =====             | =====               | ===== | =====               | ===== | =====               | ===== |
| EPA SAMPLE<br>NO. |                     |       |                     |       |                     |       |
| =====             | =====               | ===== | =====               | ===== | =====               | ===== |
| 01 1443-1MS       | 126734              | 9.29  | 470025              | 12.45 | 211234              | 16.91 |
| 02 1443-1MSD      | 122326              | 9.30  | 437087              | 12.44 | 225427              | 16.92 |
| 03 1443-1         | 128122              | 9.28  | 436707              | 12.44 | 238314              | 16.90 |
| 04 1443-3         | 121411              | 9.30  | 430510              | 12.45 | 254041              | 16.87 |
| 05                |                     |       |                     |       |                     |       |
| 06                |                     |       |                     |       |                     |       |
| 07                |                     |       |                     |       |                     |       |
| 08                |                     |       |                     |       |                     |       |
| 09                |                     |       |                     |       |                     |       |
| 10                |                     |       |                     |       |                     |       |
| 11                |                     |       |                     |       |                     |       |
| 12                |                     |       |                     |       |                     |       |
| 13                |                     |       |                     |       |                     |       |
| 14                |                     |       |                     |       |                     |       |
| 15                |                     |       |                     |       |                     |       |
| 16                |                     |       |                     |       |                     |       |
| 17                |                     |       |                     |       |                     |       |
| 18                |                     |       |                     |       |                     |       |
| 19                |                     |       |                     |       |                     |       |
| 20                |                     |       |                     |       |                     |       |
| 21                |                     |       |                     |       |                     |       |
| 22                |                     |       |                     |       |                     |       |

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside of QC limits with an asterisk.

\* Values outside of QC limits.

8C  
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name:NDRC LABORATORIES, INC. Contract:0

Lab Code:0 Case No.: SAS No.: SDG No.:P1443

Lab File ID: (Standard):ED624 Date Analyzed: 2/17/93

Instrument ID:ABN5 Time Analyzed:1606

|                   | IS4 (PHN)<br>AREA # | RT #  | IS5 (CRY)<br>AREA # | RT #  | IS6 (PRY)<br>AREA # | RT #  |
|-------------------|---------------------|-------|---------------------|-------|---------------------|-------|
| =====             | =====               | ===== | =====               | ===== | =====               | ===== |
| 12 HOUR STD       | 547093              | 20.55 | 424798              | 27.24 | 331941              | 30.78 |
| UPPER LIMIT       | 1094186             | 21.05 | 849596              | 27.74 | 663882              | 31.28 |
| LOWER LIMIT       | 273547              | 20.05 | 212399              | 26.74 | 165971              | 30.28 |
| =====             | =====               | ===== | =====               | ===== | =====               | ===== |
| EPA SAMPLE<br>NO. |                     |       |                     |       |                     |       |
| =====             | =====               | ===== | =====               | ===== | =====               | ===== |
| 01 1443-1MS       | 416017              | 20.57 | 335507              | 27.24 | 29042*              | 30.75 |
| 02 1443-1MSD      | 388458              | 20.58 | 311147              | 27.24 | 37978*              | 30.76 |
| 03 1443-1         | 424217              | 20.57 | 344778              | 27.23 | 196031              | 30.78 |
| 04 1443-3         | 455198              | 20.56 | 368202              | 27.23 | 238906              | 30.77 |
| 05                |                     |       |                     |       |                     |       |
| 06                |                     |       |                     |       |                     |       |
| 07                |                     |       |                     |       |                     |       |
| 08                |                     |       |                     |       |                     |       |
| 09                |                     |       |                     |       |                     |       |
| 10                |                     |       |                     |       |                     |       |
| 11                |                     |       |                     |       |                     |       |
| 12                |                     |       |                     |       |                     |       |
| 13                |                     |       |                     |       |                     |       |
| 14                |                     |       |                     |       |                     |       |
| 15                |                     |       |                     |       |                     |       |
| 16                |                     |       |                     |       |                     |       |
| 17                |                     |       |                     |       |                     |       |
| 18                |                     |       |                     |       |                     |       |
| 19                |                     |       |                     |       |                     |       |
| 20                |                     |       |                     |       |                     |       |
| 21                |                     |       |                     |       |                     |       |
| 22                |                     |       |                     |       |                     |       |

IS4 (PHN) = Phenanthrene-d10  
IS5 (CRY) = Chrysene-d12  
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area  
AREA LOWER LIMIT = - 50% of internal standard area  
RT UPPER LIMIT = +0.50 minutes of internal standard RT  
RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column used to flag values outside of QC limits with an asterisk.  
\* Values outside of QC limits.

## QUANT REPORT

Page 1

Operator ID: BILL  
 Output File: ^ED627::D2  
 Data File: >ED627::D7  
 Name: TCLP EMI 1443-4 MS  
 Misc: 10/1 02-11-93

Quant Rev: 7  
 Quant Time: 930218 09:31  
 Injected at: 930217 18:31  
 Dilution Factor: 1.00000  
 Instrument ID: ABN5  
 BTL# 4

1443-1 MS  
 B210

ID File: ID\_QC5::ZZ

Title: 5 Point Calibration for TCLP Hazardous Substances (HP005)

Last Calibration: 911030 15:28

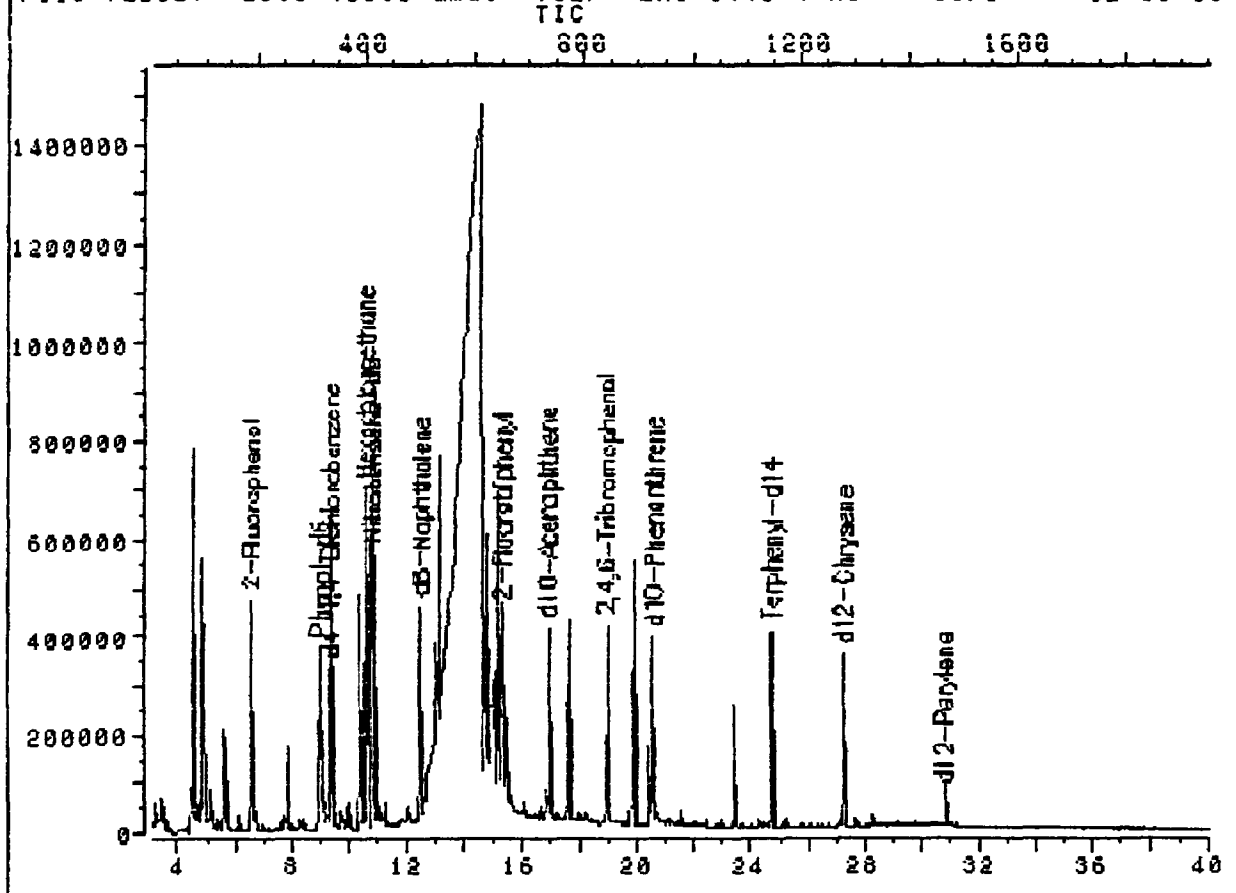
Last Qcal Time: 930217 16:06

|     | Compound                | R.T.  | Q ion | Area        | Conc   | Units | q  |
|-----|-------------------------|-------|-------|-------------|--------|-------|----|
| 1)  | *d4-1,4-Dichlorobenzene | 9.29  | 152.0 | 126734      | 50.00  | ng/ul | 95 |
| 2)  | 2-Fluorophenol          | 6.53  | 112.0 | 318935      | 98.83  | ng/ul | 92 |
| 3)  | Phenol-d6               | 8.93  | 99.0  | 330961      | 95.04  | ng/ul | 89 |
| 5)  | 1,4-Dichlorobenzene     | 9.35  | 146.0 | 356444      | 81.23  | ng/ul | 88 |
| 6)  | 2-Methylphenol          | 10.33 | 108.0 | 262273      | 92.07  | ng/ul | 95 |
| 7)  | 3-Methylphenol          | 10.75 | 108.0 | 471572      | 92.58  | ng/ul | 87 |
| 8)  | 4-Methylphenol          | 10.75 | 107.0 | 531259      | 97.28  | ng/ul | 97 |
| 9)  | *d8-Naphthalene         | 12.45 | 136.0 | 470025      | 50.00  | ng/ul | 86 |
| 10) | Hexachloroethane        | 10.52 | 117.0 | 169595      | 73.86  | ng/ul | 88 |
| 11) | Nitrobenzene-d5         | 10.77 | 82.0  | 199396      | 43.47  | ng/ul | 94 |
| 12) | Nitrobenzene            | 10.82 | 77.0  | 378299      | 79.58  | ng/ul | 92 |
| 13) | Hexachlorobutadiene     | 13.02 | 225.0 | 207521      | 84.30  | ng/ul | 98 |
| 14) | *d10-Acenaphthene       | 16.91 | 164.0 | 211234      | 50.00  | ng/ul | 96 |
| 15) | 2,4,6-Trichlorophenol   | 15.18 | 196.0 | 231349M     | 116.97 | ng/ul | 93 |
| 16) | 2,4,5-Trichlorophenol   | 15.33 | 196.0 | 239655      | 128.54 | ng/ul | 96 |
| 17) | 2-Fluorobiphenyl        | 15.29 | 172.0 | 345930/09.9 | 54.96  | ng/ul | 90 |
| 18) | 2,4-Dinitrotoluene      | 17.65 | 165.0 | 263733M     | 118.20 | ng/ul | 85 |
| 19) | *d10-Phenanthrene       | 20.57 | 188.0 | 416017      | 50.00  | ng/ul | 77 |
| 20) | 2,4,6-Tribromophenol    | 18.93 | 330.0 | 126802      | 97.55  | ng/ul | 90 |
| 21) | Hexachlorobenzene       | 19.85 | 283.9 | 188127      | 89.62  | ng/ul | 93 |
| 22) | Pentachlorophenol       | 20.36 | 266.0 | 72811       | 49.06  | ng/ul | 90 |
| 23) | *d12-Chrysene           | 27.24 | 240.0 | 335507      | 50.00  | ng/ul | 78 |
| 24) | Terphenyl-d14           | 24.68 | 244.0 | 427545/98.3 | 49.15  | ng/ul | 72 |
| 25) | *d12-Perylene           | 30.75 | 264.0 | 29042M      | 50.00  | ng/ul |    |

\* Compound is ISTD

## TOTAL ION CHROMATOGRAM

File &gt;ED627 25.0-400.0 amu. TCLP EMI 1443-4 MS 10/1 02-11-93



Data File: &gt;ED627::D7

Name: TCLP EMI 1443-4 MS

Misc: 10/1 02-11-93

Quant Output File: ^ED627::D2

Instrument ID: ABN5

B210

BTL# 4

Id File: ID\_QC5::ZZ

Title: 5 Point Calibration for TCLP Hazardous Substances (HP005)

Last Calibration: 911030 15:28

Last Qcal Time: 930217 16:06

Operator ID: BILL

Quant Time : 930218 09:31

Injected at: 930217 18:31

## QUANT REPORT

Page 1

Operator ID: BILL  
 Output File: ^ED628::D2  
 Data File: >ED628::D7  
 Name: TCLP EMI 1443-5 MSD  
 Misc: 10/1 02-11-93

Quant Rev: 7  
 Quant Time: 930218 09:36  
 Injected at: 930217 19:19  
 Dilution Factor: 1.00000  
 Instrument ID: ABN5  
 BTL# 5

1443-1MSD  
 8210

ID File: ID\_QC5::ZZ

Title: 5 Point Calibration for TCLP Hazardous Substances (HP005)

Last Calibration: 911030 15:28

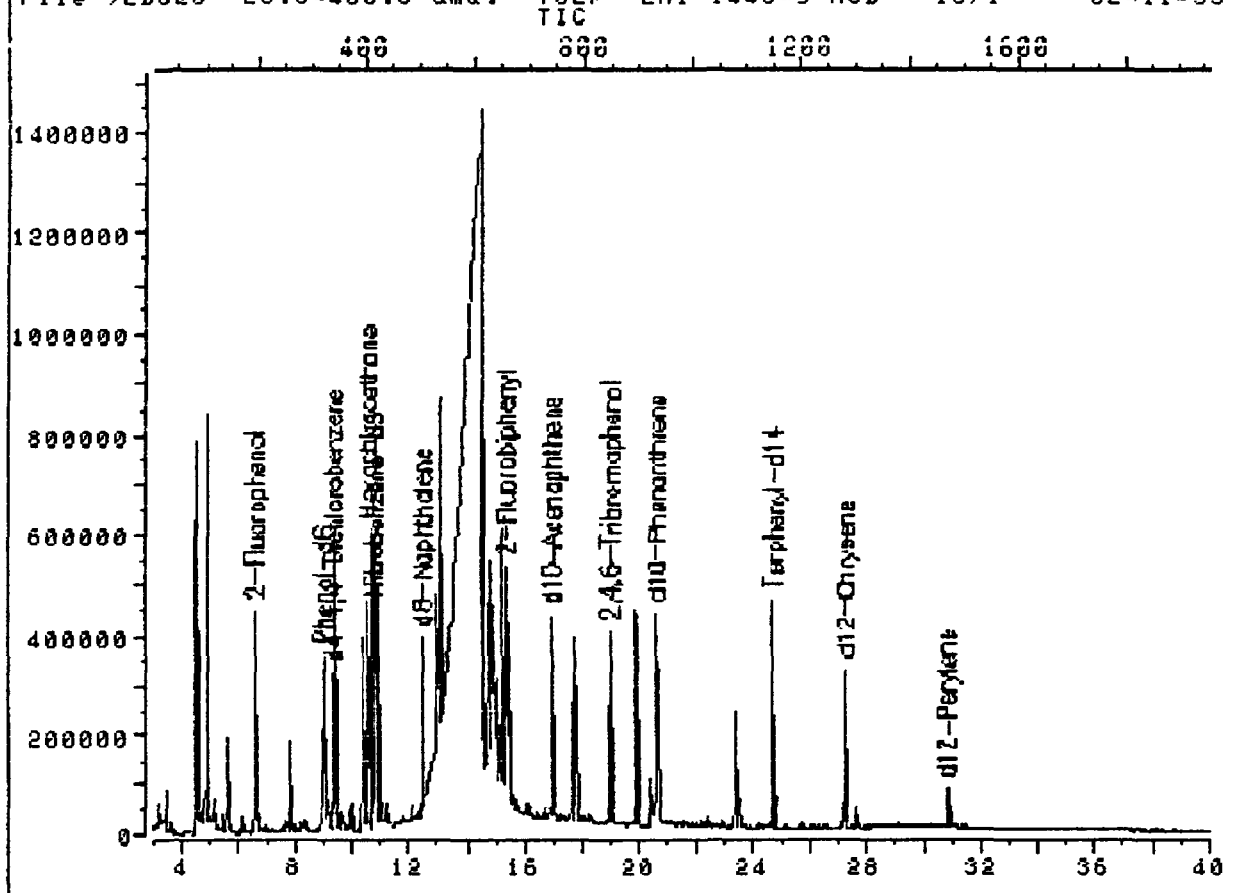
Last Qcal Time: 930217 16:06

|     | Compound                | R.T.  | Q ion | Area   | Conc       | Units | q  |
|-----|-------------------------|-------|-------|--------|------------|-------|----|
| 1)  | *d4-1,4-Dichlorobenzene | 9.30  | 152.0 | 122326 | 50.00      | ng/ul | 97 |
| 2)  | 2-Fluorophenol          | 6.54  | 112.0 | 286429 | 91.96      | ng/ul | 87 |
| 3)  | Phenol-d6               | 8.94  | 99.0  | 275035 | 81.83      | ng/ul | 91 |
| 5)  | 1,4-Dichlorobenzene     | 9.34  | 146.0 | 323110 | 76.29      | ng/ul | 86 |
| 6)  | 2-Methylphenol          | 10.32 | 108.0 | 227429 | 82.71      | ng/ul | 95 |
| 7)  | 3-Methylphenol          | 10.74 | 108.0 | 407298 | 82.84      | ng/ul | 81 |
| 8)  | 4-Methylphenol          | 10.74 | 107.0 | 458625 | 87.01      | ng/ul | 97 |
| 9)  | *d8-Naphthalene         | 12.44 | 136.0 | 437087 | 50.00      | ng/ul | 84 |
| 10) | Hexachloroethane        | 10.53 | 117.0 | 170366 | 79.78      | ng/ul | 90 |
| 11) | Nitrobenzene-d5         | 10.77 | 82.0  | 185510 | 87.0 43.49 | ng/ul | 93 |
| 12) | Nitrobenzene            | 10.83 | 77.0  | 362427 | 81.99      | ng/ul | 86 |
| 13) | Hexachlorobutadiene     | 13.03 | 225.0 | 186828 | 81.61      | ng/ul | 99 |
| 14) | *d10-Acenaphthene       | 16.92 | 164.0 | 225427 | 50.00      | ng/ul | 95 |
| 15) | 2,4,6-Trichlorophenol   | 15.17 | 196.0 | 183343 | 86.86      | ng/ul | 89 |
| 16) | 2,4,5-Trichlorophenol   | 15.34 | 196.0 | 204370 | 102.72     | ng/ul | 97 |
| 17) | 2-Fluorobiphenyl        | 15.31 | 172.0 | 315650 | 94.0 46.99 | ng/ul | 93 |
| 18) | 2,4-Dinitrotoluene      | 17.66 | 165.0 | 226380 | 95.07      | ng/ul | 83 |
| 19) | *d10-Phenanthrene       | 20.58 | 188.0 | 388458 | 50.00      | ng/ul | 79 |
| 20) | 2,4,6-Tribromophenol    | 18.95 | 330.0 | 118687 | 97.78      | ng/ul | 87 |
| 21) | Hexachlorobenzene       | 19.84 | 283.9 | 177607 | 90.61      | ng/ul | 89 |
| 22) | Pentachlorophenol       | 20.37 | 266.0 | 51890  | 37.44      | ng/ul | 93 |
| 23) | *d12-Chrysene           | 27.23 | 240.0 | 311147 | 50.00      | ng/ul | 76 |
| 24) | Terphenyl-d14           | 24.69 | 244.0 | 367592 | 91.1 45.56 | ng/ul | 74 |
| 25) | *d12-Perylene           | 30.76 | 264.0 | 37978  | 50.00      | ng/ul | 85 |

\* Compound is ISTD

## TOTAL ION CHROMATOGRAM

File &gt;ED628 25.0-400.0 amu. TCLP EMI 1443-5 MSD 10/1 02-11-93



Data File: &gt;ED628::D7

Name: TCLP EMI 1443-5 MSD

Misc: 10/1 02-11-93

Quant Output File: ^ED628::D2

Instrument ID: ABN5

B210

BTL# 5

Id File: ID\_QC5::ZZ

Title: 5 Point Calibration for TCLP Hazardous Substances (HP005)

Last Calibration: 911030 15:28

Last Qcal Time: 930217 16:06

Operator ID: BILL

Quant Time : 930218 09:36

Injected at: 930217 19:19

## QUANT REPORT

Page 1

Operator ID: BILL  
 Output File: ^ED596::D2  
 Data File: >ED596::D8  
 Name: TCLP LCS  
 Misc: 1000/1 02-11-93

Quant Rev: 7 Quant Time: 930216 08:39  
 Injected at: 930215 22:49  
 Dilution Factor: 1.00000  
 Instrument ID: ABN5  
 BTL#11

ID File: ID\_QC5::22

Title: 5 Point Calibration for TCLP Hazardous Substances (HP005)

Last Calibration: 911030 15:28

Last Qcal Time: 930215 17:05

|     | Compound                | R.T.  | Q ion | Area       | Conc   | Units | q  |
|-----|-------------------------|-------|-------|------------|--------|-------|----|
| 1)  | *d4-1,4-Dichlorobenzene | 9.51  | 152.0 | 90028      | 50.00  | ng/ul | 98 |
| 2)  | 2-Fluorophenol          | 6.74  | 112.0 | 176637     | 72.64  | ng/ul | 89 |
| 3)  | Phenol-d6               | 9.10  | 99.0  | 200562     | 70.47  | ng/ul | 91 |
| 4)  | Pyridine                | 3.40  | 79.0  | 89872      | 36.45  | ng/ul | 95 |
| 5)  | 1,4-Dichlorobenzene     | 9.55  | 146.0 | 197993     | 68.20  | ng/ul | 81 |
| 6)  | 2-Methylphenol          | 10.51 | 108.0 | 144032     | 70.45  | ng/ul | 93 |
| 7)  | 3-Methylphenol          | 10.91 | 108.0 | 286768     | 71.33  | ng/ul | 84 |
| 8)  | 4-Methylphenol          | 10.91 | 107.0 | 326347     | 71.07  | ng/ul | 99 |
| 9)  | *d8-Naphthalene         | 12.67 | 136.0 | 287745     | 50.00  | ng/ul | 87 |
| 10) | Hexachloroethane        | 10.74 | 117.0 | 105997     | 71.54  | ng/ul | 88 |
| 11) | Nitrobenzene-d5         | 10.97 | 82.0  | 12047282.1 | 141.04 | ng/ul | 96 |
| 12) | Nitrobenzene            | 11.02 | 77.0  | 246966     | 74.40  | ng/ul | 93 |
| 13) | Hexachlorobutadiene     | 13.25 | 225.0 | 121324     | 74.95  | ng/ul | 98 |
| 14) | *d10-Acenaphthene       | 17.12 | 164.0 | 189478     | 50.00  | ng/ul | 92 |
| 15) | 2,4,6-Trichlorophenol   | 15.35 | 196.0 | 137942     | 71.43  | ng/ul | 88 |
| 16) | 2,4,5-Trichlorophenol   | 15.48 | 196.0 | 145681     | 73.76  | ng/ul | 96 |
| 17) | 2-Fluorobiphenyl        | 15.50 | 172.0 | 18949170.8 | 35.38  | ng/ul | 94 |
| 18) | 2,4-Dinitrotoluene      | 17.82 | 165.0 | 136937     | 70.44  | ng/ul | 92 |
| 19) | *d10-Phenanthrene       | 20.83 | 188.0 | 330042     | 50.00  | ng/ul | 83 |
| 20) | 2,4,6-Tribromophenol    | 19.16 | 330.0 | 99391      | 85.79  | ng/ul | 86 |
| 21) | Hexachlorobenzene       | 20.07 | 284.0 | 127536     | 75.61  | ng/ul | 93 |
| 22) | Pentachlorophenol       | 20.58 | 266.0 | 94465      | 86.41  | ng/ul | 91 |
| 23) | *d12-Chrysene           | 27.51 | 240.0 | 305319     | 50.00  | ng/ul | 78 |
| 24) | Terphenyl-d14           | 24.96 | 244.0 | 26803167.8 | 33.89  | ng/ul | 79 |
| 25) | *d12-Perylene           | 30.93 | 264.0 | 267250     | 50.00  | ng/ul | 92 |

\* Compound is ISTD

|      |       |                 |          |        |          |
|------|-------|-----------------|----------|--------|----------|
| File | CD330 | 25.0-400.0 amu. | TCLP LCS | 1000/1 | 02-11-33 |
|------|-------|-----------------|----------|--------|----------|

|     |     |      |      |
|-----|-----|------|------|
| 400 | 800 | 1200 | 1600 |
|-----|-----|------|------|



## QUANT REPORT

Page 1

Operator ID: BILL  
 Output File: ^ED629::D2  
 Data File: >ED629::D7  
 Name: TCLP EMI 1443-1  
 Misc: 10/1 02-11-93

Quant Rev: 7 Quant Time: 930218 09:40  
 Injected at: 930217 20:07  
 Dilution Factor: 1.00000  
 Instrument ID: ABN5  
 BTL# 6

ID File: ID\_QC5::ZZ

Title: 5 Point Calibration for TCLP Hazardous Substances (HP005)

Last Calibration: 911030 15:28

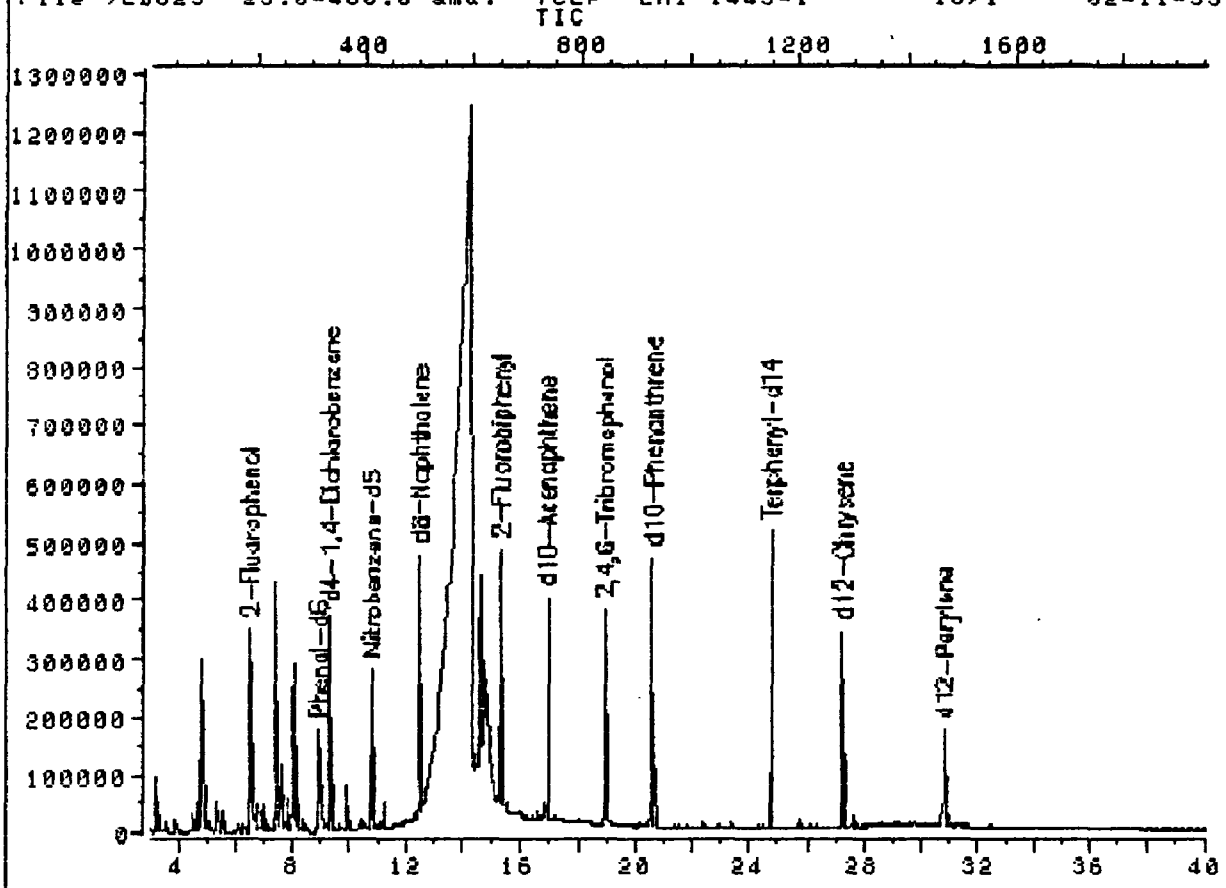
Last Qcal Time: 930217 16:06

| Compound                   | R.T.  | Q ion | Area    | Conc       | Units | q  |
|----------------------------|-------|-------|---------|------------|-------|----|
| 1) *d4-1,4-Dichlorobenzene | 9.28  | 152.0 | 128122  | 50.00      | ng/ul | 92 |
| 2) 2-Fluorophenol          | 6.49  | 112.0 | 247612M | 75.90      | ng/ul | 92 |
| 3) Phenol-d6               | 8.91  | 99.0  | 164760M | 46.80      | ng/ul | 92 |
| 9) *d8-Naphthalene         | 12.44 | 136.0 | 436707  | 50.00      | ng/ul | 85 |
| 11) Nitrobenzene-d5        | 10.74 | 82.0  | 189267  | 88.8 44.41 | ng/ul | 97 |
| 14) *d10-Acenaphthene      | 16.90 | 164.0 | 238314  | 50.00      | ng/ul | 97 |
| 17) 2-Fluorobiphenyl       | 15.29 | 172.0 | 332448  | 93.6 46.81 | ng/ul | 91 |
| 19) *d10-Phenanthrene      | 20.57 | 188.0 | 424217  | 50.00      | ng/ul | 78 |
| 20) 2,4,6-Tribromophenol   | 18.92 | 330.0 | 129489  | 97.69      | ng/ul | 87 |
| 23) *d12-Chrysene          | 27.23 | 240.0 | 344778  | 50.00      | ng/ul | 73 |
| 24) Terphenyl-d14          | 24.70 | 244.0 | 414318  | 92.7 46.35 | ng/ul | 73 |
| 25) *d12-Perylene          | 30.78 | 264.0 | 196031  | 50.00      | ng/ul | 92 |

\* Compound is ISTD

## TOTAL ION CHROMATOGRAM

File &gt;ED629 29.0-460.0 amu. TCLP EMI 1443-1 10/1 02-11-93



Data File: &gt;ED629::D7

Name: TCLP EMI 1443-1

Misc: 10/1 02-11-93

Quant Output File: ^ED629::D2

Instrument ID: ABN5

B210

BTL# 6

Id File: ID\_QC5::Z2

Title: 5 Point Calibration for TCLP Hazardous Substances (HP005)

Last Calibration: 911030 15:28

Last Qcal Time: 930217 16:06

Operator ID: BILL

Quant Time : 930218 09:40

Injected at: 930217 20:07

## 4.

2-11-93

**QC SUMMARY REPORT**  
**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 6**  
**HOUSTON BRANCH**  
**10625 FALLSTONE ROAD**  
**HOUSTON, TEXAS 77099**

**ORGANIC REGIONAL DATA ASSESSMENT**

|             |                          |                       |                             |
|-------------|--------------------------|-----------------------|-----------------------------|
| PROJECT NO. | <u>309-R0603601</u>      | SITE                  | <u>Merichem</u>             |
| LABORATORY  | <u>NDRC</u>              | NO. OF SAMPLES        | <u>3</u>                    |
| CONTRACT#   | <u>RCRA/PRC</u>          | MATRIX                | <u>Water (TCLP Extract)</u> |
| SDG#        | <u>P1443</u>             | REVIEWER (IF NOT ESD) | <u>ESAT</u>                 |
| SOW#        | <u>SW-846, 8240/8270</u> | REVIEWER'S NAME       | <u>Gene Zhu</u>             |
| ACCT#       | <u>N/A</u>               | SF#                   | <u>N/A</u>                  |
|             |                          | COMPLETION DATE       | <u>April 22, 1993</u>       |

| <u>Station No</u> | <u>Sample Locations</u> | <u>Sample ID</u> |
|-------------------|-------------------------|------------------|
| <u>3</u>          | <u>SL-2</u>             | <u>1443-1</u>    |
| <u>3</u>          | <u>TB-1</u>             | <u>1443-2</u>    |
| <u>3</u>          | <u>FB-1</u>             | <u>1443-3</u>    |

**Notes:** The data package was received on 3/23/1993. No EPA OTR/COC Records included. Last sample was received by the laboratory on 2/6/1993. The data package turnaround time is 45 days.

**Comment:** a) The case consisted of data for 3 water samples analyzed by the laboratory following the EPA protocol of SW-846, 8240 and 8270 for VOA and BNA analyses. b) CSF audit was not conducted for this case.

**Case/SDG:** RCRA 309-R0603601 P1443

**Fraction:** VOA

1. **Holding time:** Sample SL-2 and FB-1 met technical holding time criteria for CLP VOA analyses. Sample TB-1 did not go through the TCLP extraction and was analyzed at the 15th day, one day over technical holding time limit for extractio or determinative analysis. However, the total technical holding time is 28 days if TCLP extraction was perfromred.

2. **Tuning/Instrument Performance:** ok

3a. **Initial Calibrations:**

A. 2/14/93, 1500->1717, for VOA1, not heated, ok

B. 2/13/93, 0830->1305, for VOA2, not heated, ok

=> All quantitation ions were omitted on quant reports for all initial calibraton standards and some daily calibrations and some analyses.

=> RRFs were below 0.05 for 2-butanone in all calibrations because RRFs for the compound were calculated against the second IS, 1,4-difluorobenzene. If RRFs were calculated against the first IS, bromochloromethane, RRFs would be ok.

3b. **Continuing Calibrations:** see copy

4. **Blanks:** met QC technical requirements, but TCLP blank was contaminated by 2-butanone, "J" or "U"?

5. **System Monitoring Compounds:** ok

6. **MS/MSD:** ok, except both %Rec's for 2-butanone exceeded the QC limits, "J" positive results.

7. **LCS:** The laboratory only reported Form 1A for the LCS, and no other form, such as Form 3LCS, which would give the amounts spiked for the LCS analytes. Ask the laboratory how much spiked.

8a. **Compound Identity and quantitation:**

1) All samples were analyzed under EPA method 8240.

8b. **Data Completeness:**

9. **Assessment:**

P: Sample 1443-1 due to a MS/MSD performance deficiency.

A: Samples 1443-2 and 1443-3.

Case/SDG: RCRA 309-R0603601 P1443 Fraction: BNA

1. Holding time: All technical holding time criteria were met.

2. Tuning/Instrument Performance: see copy, ok, except see note:

=> The reported "Ion Abundance Criteria" were not the method-specified, although all tunings met QC criteria.

3a. Initial Calibrations:

A. 2/3/93, 1004->1318, I.C. for ABN5, ok

=> Internal standard concentrations were 50 µg/L, which is different from the method-specified. However, technically no negative affect on sample data.

=> It appeared that the laboratory could not separate 3-methylphenol and 4-methylphenol so ions 108 and 107 were used respectively, which differed from the method specified, 107 for all three isomers.

=> Injection volume was not indicated, <sup>on for data</sup> assume 1 µL.

3b. Continuing Calibrations: ok for all, except see note:

=> The %D for hexachlorobutadiene exceeded the method specified QC criteria for daily calibration, but the laboratory failed to take the method-required corrective action. Data was not affected technically by this deficiency.

4. Blanks: all ok, see copy

5. Surrogates: ok, except S4 for 1443-1MS marginally exceeded.

=> The concentrations for surrogates were 100 ng/µL (on column) for 2-fluorophenol, phenol-d5, and 2,4,6-tribromophenol, and 50 ng/µ for nitrobenzene-d5, 2-fluorobiphenyl, and terphenyl-d14, assumed according to the laboratory calculations.

6. MS/MSD: ok, except pyridine

=> The QC limits were not the method-specified for surrogates nitrobenzene-d5, 2-fluorobiphenyl, phenol-d5, and 2-fluorophenol. Ask the laboratory to explain.

7. LCS: The laboratory only reported Form 1B for the LCS, and no other form, such as Form 3LCS, which would give the amounts spiked for the LCS analytes. Ask the laboratory how much spiked.

8a. Compound Identity and quantitation:

1) The calibration standards were at 20 ng/µL for lowest point for 2,4,5-trichlorophenol and pentachlorophenol, why the reported quantitation limits were 2.5X higher than other compounds?

2) Samples 1443-1MS/MSD: Since the quantitation limit for pentachlorophenol was the same for other compounds, "J" should not be used for the results for this compound.

3) All samples: The "B" flags for 1,4-dichlorobenzene and pyridine were meaningless.

8b. Data Completeness:

9. Assessment:

P:

A:



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

March 16, 1993

MEMORANDUM

SUBJECT: Data Validation Request  
Merichem Boiler and Industrial Furnace (BIF) Inspection,  
February 4 and 5, 1993.

FROM: Rena McClurg *Rena McClurg*  
Regional Project Officer  
Technical Section (6H-CX)  
RCRA Enforcement Branch

TO: Mel Ritter  
ESAT Coordinator  
Houston Laboratory

\*? Between February 4 and 5, 1993, samples were collected from the Merichem Company facility in Houston, Texas as part of a BIF inspection. The analytical work was performed by NDRC Laboratories under contract to the region. The analytical data resulting from these samples were received by the EPA on March 12, 1993. The analytical data requires the appropriate data validation to determine the degree of acceptance of the data. Please process this request under the appropriate work assignment.

The data package is enclosed for immediate transfer to the data validator. Please specifically validate the analytical results for field sample number RL-1. If you have any questions, please contact Bryon Heineman at 214-655-8318.



CHAIN OF CUSTODY RECORD

| PROJ. NO.<br>309-R0603601  |        | PROJECT NAME<br>MERICHEN 309R0603601 |       | NO. OF<br>TIMERS                                    |                  | 10 BIF METALS<br>(TOTAL)<br>ASH/BTV / TOTAL COMBUSTIBLE |   | TOTAL SUSPENDED SOLIDS  |   | Level IV QC<br>REMARKS   |        |
|--|--------|--------------------------------------|-------|---|------------------|---|---|---|---|--------------------------|--------|
| SAMPLERS: (Signature)<br>M. BUTLER   |        |                                      |       |   |                  | Contact<br>MICHAEL JUSCIS                               |   |   |   |                          |        |
| STA. NO.   | DATE   | TIME                                 | COMP. | GRAB  | STATION LOCATION |   |   |   |   |                          |        |
| 1  | 2/4/93 | 1505                                 |       | ✓   | RL-1             | 4   | 2 | 2   |   |                          | 1441-1 |
| 3  | 2/4/93 | 1537                                 |       | ✓   | SL-1             | 2   |   |   | 2 |                          | 2      |
| 2  | 2/4/93 | 1603                                 |       | ✓   | NO-2             | 1   | 1 |   |   |                          | 3      |
| ORIGINAL   |        |                                      |       |   |                  |   |   |   |   |                          |        |
| GENERAL  |        |                                      |       |   |                  |   |   |   |   |                          |        |
| Liquid Report in mg/Kg<br>Due 2-18-93<br>Level III QC<br>CLP Package - Minus Disc<br>2/24/93 |        |                                      |       |   |                  |   |   |   |   |                          |        |
| Relinquished by: (Signature)<br>M. Juscis  |        | Date / Time<br>2/4/93 1800           |       | Received by: (Signature)                            |                  | Relinquished by: (Signature)                            |   | Date / Time   |   | Received by: (Signature) |        |
| Relinquished by: (Signature)   |        | Date / Time                          |       | Received by: (Signature)                            |                  | Relinquished by: (Signature)                            |   | Date / Time   |   | Received by: (Signature) |        |
| Relinquished by: (Signature)   |        | Date / Time                          |       | Received for Laboratory by: (Signature)<br>D. Meyer |                  | Date / Time<br>2/5/93 10:00AM                           |   | Remarks<br>* ASH CONTENT<br>HEAT VALUE (BTV)<br>TOTAL CHLORINE & CHLORIDE |   |                          |        |

Distribution: Original Accompanies Shipment; Copy to Coordinator, Field Files

See Attached

## CHAIN OF CUSTODY RECORD

[illegible]

PRC-EMI N. St. Paul

CHAIN OF CUSTODY RECORD

| PROJ. NO.  |        | PROJECT NAME          |       |   |                          | NO. OF CONTAINERS            | REMARKS |             |   |                          |  |
|--|--------|-----------------------|-------|---|--------------------------|------------------------------|---------|-------------|---|--------------------------|--|
| SAMPLE BB. (Signature)   |        | STATION LOCATION      |       |   |                          |                              |         |             |   |                          |  |
| STA. NO.   | DATE   | TIME                  | COMP. | GRAB                                    |                          |                              |         |             |   |                          |  |
| M. Juscius M. Butler   |        | MERICHEM 309-RO603601 |       |   |                          |                              |         |             |   |                          |  |
| 3  | 2/5/93 | 1005                  |       | X                                       | SL-2 <del>Reported</del> | 12                           | 2       | 6           | 4 |                          |  |
| 3  | 2/2/93 | 1635                  |       | X                                       | TB-1                     | 2                            | 2       |             |   |                          |  |
| 3  | 2/5/93 | 1025                  |       | X                                       | FB-1                     | 8                            | 2       | 4           | 2 |                          |  |
|  |        |                       |       |   | SL-2 MS                  |                              | X       | X           | X |                          |  |
|  |        |                       |       |   | SL-2 MSD                 |                              | X       | X           | X |                          |  |
|  |        |                       |       |   | SL-2 Method Blank        |                              | X       | X           | X |                          |  |
| <p>Liquid<br/>Due 2-18-93<br/>Level IV QC<br/>CLP Package-Minus Disc</p> |        |                       |       |   |                          |                              |         |             |   |                          |  |
|  |        |                       |       |   |                          |                              |         |             |   |                          |  |
|  |        |                       |       |   |                          |                              |         |             |   |                          |  |
|  |        |                       |       |   |                          |                              |         |             |   |                          |  |
| Relinquished by: (Signature)   |        | Date / Time           |       | Received by: (Signature)                |                          | Relinquished by: (Signature) |         | Date / Time |   | Received by: (Signature) |  |
| M. Juscius   |        | 2/5/93 11:25          |       |   |                          |                              |         |             |   |                          |  |
| Relinquished by: (Signature)   |        | Date / Time           |       | Received by: (Signature)                |                          | Relinquished by: (Signature) |         | Date / Time |   | Received by: (Signature) |  |
|  |        |                       |       |   |                          |                              |         |             |   |                          |  |
| Relinquished by: (Signature)   |        | Date / Time           |       | Received for Laboratory by: (Signature) |                          | Date / Time                  |         | Remarks     |   |                          |  |
|  |        |                       |       | [Signature]                             |                          | 2-6-93 11:00                 |         |             |   |                          |  |

**Incoming Samples** ☐

Company: PRC Job No: 10100  
No. of Cooler(s): 1 Temperature of Cooler(s): 67°C

[illegible]

|  |  |
|--|--|
| 1 - Cool to 4° C                             | 5 - NaOH to pH > 12                                      |
| 2 - H <sub>2</sub> SO <sub>4</sub> to pH < 2 | 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>2</sub> 0.008% |
| 3 - HNO <sub>3</sub> to pH < 2               | 7 - 2 mL Zinc Acetate and NaOH to pH > 12                |
| 4 - HCL to pH < 2                            | 8 - None required  |

Date/Time

Date/Time



# NDRC LABORATORIES, INC.

A member of Inchcape Environmental

1089 East Collins Blvd., Richardson, Texas 75081 • (214) 238-5591 • FAX (214) 238-5592

BEAUMONT

DALLAS

HOUSTON

DATE RECEIVED: 05-06-FEB-1993

REPORT NUMBERS: D93-1441, 1443

REPORT DATE: 03-MAR-1993

SAMPLE SUBMITTED BY : PRC-EMI

ADDRESS : 350 N. St. Paul St. Suite 2600

Dallas, Texas 75201

ATTENTION : Mr. Michael Juscus

PROJECT : 309-R0603601 Merichem

DATE SAMPLED : 03-05-FEB-1993

---

## CASE NARRATIVE COMMENTS

Regarding the EPA 8240 Volatile Organics analysis, the MS/MSD recovery for 2-Butanone was outside of quality control limits. The data was validated by the laboratory control sample. The preparation blank for this analysis contained 2-Butanone contamination.

For the EPA 8270 Semivolatile analysis, Pyridine was not recovered in the MS/MSD samples. The laboratory control sample was used to verify the data.

The TCLP metals analysis by ICP of Arsenic and Selenium, and the analysis of Chromium for sample D93-1441-4 were background corrected. The LIMS report for these analytes reflects the corrected value, while the CLP forms reflect the results before background correction.

Also regarding the Inorganic analysis, the Barium was not recovered in the matrix spike (1443-1S). The laboratory control sample for Barium did have an acceptable percent recovery.

The results of the serial dilution analysis by ICP are not within quality control limits. This is due to matrix interference caused by the nature of the samples.

Enclosed is the diskette deliverable for the above referenced jobs. We have been having some technical difficulties with our generation program of the Volatile Organics diskette, and it is possible that this data is incorrectly formatted. We will submit a corrected diskette to you as soon as possible. NDRC Laboratories apologizes for any inconvenience this delay might cause.

CUSTOMER : PRC-EMI  
PROJECT : 309-R0603601 Merichem

=====

SAMPLE ID : D93-1441-1      DATE SAMPLED : 4-FEB-1993  
ID MARKS : RL-1

| ANALYSIS   | PRP | BY | PREP DATE   | ANL | BY | ANALYSIS DATE |
|------------|-----|----|-------------|-----|----|---------------|
| ASH_S      |     |    |             | RJS |    | 10-FEB-1993   |
| BTU        |     |    |             | BWB |    | 15-FEB-1993   |
| CHLORIDE_S |     |    |             | BWB |    | 15-FEB-1993   |
| CHLORINE_B |     |    |             | BWB |    | 15-FEB-1993   |
| M_AG_B_S_I | TAP |    | 11-FEB-1993 | KJS |    | 19-FEB-1993   |
| M_AS_B_S_D | TAP |    | 11-FEB-1993 | AH  |    | 17-FEB-1993   |
| M_BA_B_S_I | TAP |    | 11-FEB-1993 | KJS |    | 18-FEB-1993   |
| M_BE_B_S_I | TAP |    | 11-FEB-1993 | KJS |    | 18-FEB-1993   |
| M_CD_B_S_I | TAP |    | 11-FEB-1993 | KJS |    | 18-FEB-1993   |
| M_CR_B_S_I | TAP |    | 11-FEB-1993 | KJS |    | 18-FEB-1993   |
| M_HG_B_S_V | TAP |    | 15-FEB-1993 | AH  |    | 18-FEB-1993   |
| M_PB_B_S_F | TAP |    | 11-FEB-1993 | RKD |    | 23-FEB-1993   |
| M_SB_B_S_F | TAP |    | 11-FEB-1993 | RKD |    | 23-FEB-1993   |
| M_TL_B_S_F | TAP |    | 11-FEB-1993 | MES |    | 23-FEB-1993   |

=====

SAMPLE ID : D93-1441-2      DATE SAMPLED : 4-FEB-1993  
ID MARKS : SL-1

| ANALYSIS   | PRP | BY | PREP DATE | ANL | BY | ANALYSIS DATE |
|------------|-----|----|-----------|-----|----|---------------|
| SOL_TS_PER |     |    |           | RJS |    | 19-FEB-1993   |

=====

SAMPLE ID : D93-1441-3      DATE SAMPLED : 4-FEB-1993  
ID MARKS : Method Blank

| ANALYSIS   | PRP | BY | PREP DATE   | ANL | BY | ANALYSIS DATE |
|------------|-----|----|-------------|-----|----|---------------|
| M_AG_B_S_I | TAP |    | 11-FEB-1993 | KJS |    | 19-FEB-1993   |
| M_AS_B_S_D | TAP |    | 11-FEB-1993 | AH  |    | 17-FEB-1993   |
| M_BA_B_S_I | TAP |    | 11-FEB-1993 | KJS |    | 18-FEB-1993   |
| M_BE_B_S_I | TAP |    | 11-FEB-1993 | KJS |    | 18-FEB-1993   |
| M_CD_B_S_I | TAP |    | 11-FEB-1993 | KJS |    | 18-FEB-1993   |
| M_CR_B_S_I | TAP |    | 11-FEB-1993 | KJS |    | 18-FEB-1993   |
| M_HG_B_S_V | TAP |    | 15-FEB-1993 | AH  |    | 18-FEB-1993   |
| M_PB_B_S_F | TAP |    | 11-FEB-1993 | RKD |    | 23-FEB-1993   |
| M_SB_B_S_F | TAP |    | 11-FEB-1993 | RKD |    | 23-FEB-1993   |
| M_TL_B_S_F | TAP |    | 11-FEB-1993 | MES |    | 23-FEB-1993   |

CUSTOMER : PRC-EMI  
PROJECT : 309-R0603601 Merichem

SAMPLE ID : D93-1441-4      DATE SAMPLED : 4-FEB-1993  
ID MARKS : NO-1

| ANALYSIS   | PRP BY | PREP DATE   | ANL BY | ANALYSIS DATE |
|------------|--------|-------------|--------|---------------|
| ASH_S      |        |             | RJS    | 10-FEB-1993   |
| BTU        |        |             | BWB    | 15-FEB-1993   |
| CHLORIDE_S |        |             | BWB    | 15-FEB-1993   |
| CHLORINE_B |        |             | BWB    | 15-FEB-1993   |
| M_AG_B_S_I | TAP    | 11-FEB-1993 | KJS    | 19-FEB-1993   |
| M_AS_B_S_D | TAP    | 11-FEB-1993 | AH     | 17-FEB-1993   |
| M_BA_B_S_I | TAP    | 11-FEB-1993 | KJS    | 18-FEB-1993   |
| M_BE_B_S_I | TAP    | 11-FEB-1993 | KJS    | 18-FEB-1993   |
| M_CD_B_S_I | TAP    | 11-FEB-1993 | KJS    | 18-FEB-1993   |
| M_CR_B_S_I | TAP    | 11-FEB-1993 | KJS    | 18-FEB-1993   |
| M_HG_B_S_V | TAP    | 15-FEB-1993 | AH     | 18-FEB-1993   |
| M_PB_B_S_F | TAP    | 11-FEB-1993 | RKD    | 23-FEB-1993   |
| M_SB_B_S_F | TAP    | 11-FEB-1993 | RKD    | 23-FEB-1993   |
| M_TL_B_S_F | TAP    | 11-FEB-1993 | MES    | 23-FEB-1993   |

| ANALYSIS ID | DESCRIPTION                           |
|-------------|---------------------------------------|
| ASH_S       | Ash Determination, Solid Matrix       |
| BTU         | BTU Determination, BTU/lb             |
| CHLORIDE_S  | Chloride, Solid Matrix, Titration     |
| CHLORINE_B  | Chlorine, By Bomb                     |
| M_AG_B_S_I  | Silver, Total BIF by weight by ICP    |
| M_AS_B_S_D  | Arsenic, Total BIF by weight by Flame |
| M_BA_B_S_I  | Barium, Total BIF by weight by ICP    |
| M_BE_B_S_I  | Beryllium, Total BIF by weight by ICP |
| M_CD_B_S_I  | Cadmium, Total BIF by weight by ICP   |
| M_CR_B_S_I  | Chromium, Total BIF by weight by ICP  |
| M_HG_B_S_V  | Mercury, Total BIF by weight by GVAA  |
| M_PB_B_S_F  | Lead, Total BIF by weight by GFAA     |
| M_SB_B_S_F  | Antimony, Total BIF by weight by GFAA |
| M_TL_B_S_F  | Thallium, Total BIF by weight by GFAA |
| SOL_TS_PER  | Total Suspended Solids, Solid Matrix  |

## CASE NARRATIVE SUMMARY

PAGE 1

CUSTOMER : PRC-EMI  
PROJECT : 309-R0603601 Merichem

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SAMPLE ID : D93-1443-1      DATE SAMPLED : 5-FEB-1993  
ID MARKS : SL-2

| ANALYSIS   | PRP | BY | PREP DATE   | ANL | BY | ANALYSIS DATE |
|------------|-----|----|-------------|-----|----|---------------|
| M AG TC I  | CCM |    | 10-FEB-1993 | KJS |    | 19-FEB-1993   |
| M AS TC I  | CCM |    | 10-FEB-1993 | KJS |    | 19-FEB-1993   |
| M BA TC I  | CCM |    | 10-FEB-1993 | KJS |    | 18-FEB-1993   |
| M CD TC I  | CCM |    | 10-FEB-1993 | KJS |    | 18-FEB-1993   |
| M CR TC I  | CCM |    | 10-FEB-1993 | KJS |    | 18-FEB-1993   |
| M HG TC V  | CCM |    | 10-FEB-1993 | AH  |    | 16-FEB-1993   |
| M PB TC I  | CCM |    | 10-FEB-1993 | KJS |    | 18-FEB-1993   |
| M SE TC I  | CCM |    | 10-FEB-1993 | KJS |    | 19-FEB-1993   |
| TC ABN REG | TLR |    | 10-FEB-1993 | WSW |    | 17-FEB-1993   |
| TC VOA REG | TLR |    | 10-FEB-1993 | SAP |    | 19-FEB-1993   |

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SAMPLE ID : D93-1443-2      DATE SAMPLED : 3-FEB-1993  
ID MARKS : TB-1

| ANALYSIS   | PRP | BY | PREP DATE   | ANL | BY | ANALYSIS DATE |
|------------|-----|----|-------------|-----|----|---------------|
| TC VOA REG | TLR |    | 10-FEB-1993 | JKA |    | 18-FEB-1993   |

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SAMPLE ID : D93-1443-3      DATE SAMPLED : 5-FEB-1993  
ID MARKS : FB-1

| ANALYSIS   | PRP | BY | PREP DATE   | ANL | BY | ANALYSIS DATE |
|------------|-----|----|-------------|-----|----|---------------|
| M AG TC I  | CCM |    | 10-FEB-1993 | KJS |    | 19-FEB-1993   |
| M AS TC I  | CCM |    | 10-FEB-1993 | KJS |    | 19-FEB-1993   |
| M BA TC I  | CCM |    | 10-FEB-1993 | KJS |    | 18-FEB-1993   |
| M CD TC I  | CCM |    | 10-FEB-1993 | KJS |    | 18-FEB-1993   |
| M CR TC I  | CCM |    | 10-FEB-1993 | KJS |    | 18-FEB-1993   |
| M HG TC V  | CCM |    | 10-FEB-1993 | AH  |    | 16-FEB-1993   |
| M PB TC I  | CCM |    | 10-FEB-1993 | KJS |    | 18-FEB-1993   |
| M SE TC I  | CCM |    | 10-FEB-1993 | KJS |    | 19-FEB-1993   |
| TC ABN REG | TLR |    | 10-FEB-1993 | WSW |    | 17-FEB-1993   |
| TC VOA REG | TLR |    | 10-FEB-1993 | JKA |    | 18-FEB-1993   |

## CASE NARRATIVE SUMMARY

PAGE 2

CUSTOMER : PRC-EMI  
PROJECT : 309-R0603601 Merichem

SAMPLE ID : D93-1443-4      DATE SAMPLED : 6-FEB-1993  
ID MARKS : SL-2 MS

| ANALYSIS   | PRP | BY PREP DATE | ANL | BY ANALYSIS DATE |
|------------|-----|--------------|-----|------------------|
| M_AG_TC_I  | CCM | 10-FEB-1993  | KJS | 19-FEB-1993      |
| M_AS_TC_I  | CCM | 10-FEB-1993  | KJS | 19-FEB-1993      |
| M_BA_TC_I  | CCM | 10-FEB-1993  | KJS | 18-FEB-1993      |
| M_CD_TC_I  | CCM | 10-FEB-1993  | KJS | 18-FEB-1993      |
| M_CR_TC_I  | CCM | 10-FEB-1993  | KJS | 18-FEB-1993      |
| M_HG_TC_V  | CCM | 10-FEB-1993  | AH  | 16-FEB-1993      |
| M_PB_TC_I  | CCM | 10-FEB-1993  | KJS | 18-FEB-1993      |
| M_SE_TC_I  | CCM | 10-FEB-1993  | KJS | 19-FEB-1993      |
| TC_ABN_REG | TLR | 10-FEB-1993  | WSW | 17-FEB-1993      |
| TC_VOA_REG | TLR | 10-FEB-1993  | SAP | 19-FEB-1993      |

SAMPLE ID : D93-1443-5      DATE SAMPLED : 6-FEB-1993  
ID MARKS : SL-2 MSD

| ANALYSIS   | PRP | BY PREP DATE | ANL | BY ANALYSIS DATE |
|------------|-----|--------------|-----|------------------|
| M_AG_TC_I  | CCM | 10-FEB-1993  | KJS | 19-FEB-1993      |
| M_AS_TC_I  | CCM | 10-FEB-1993  | KJS | 19-FEB-1993      |
| M_BA_TC_I  | CCM | 10-FEB-1993  | KJS | 18-FEB-1993      |
| M_CD_TC_I  | CCM | 10-FEB-1993  | KJS | 18-FEB-1993      |
| M_CR_TC_I  | CCM | 10-FEB-1993  | KJS | 18-FEB-1993      |
| M_HG_TC_V  | CCM | 10-FEB-1993  | AH  | 16-FEB-1993      |
| M_PB_TC_I  | CCM | 10-FEB-1993  | KJS | 18-FEB-1993      |
| M_SE_TC_I  | CCM | 10-FEB-1993  | KJS | 19-FEB-1993      |
| TC_ABN_REG | TLR | 10-FEB-1993  | WSW | 17-FEB-1993      |
| TC_VOA_REG | TLR | 10-FEB-1993  | SAP | 19-FEB-1993      |

SAMPLE ID : D93-1443-6      DATE SAMPLED : 6-FEB-1993  
ID MARKS : Method Blank

| ANALYSIS   | PRP | BY PREP DATE | ANL | BY ANALYSIS DATE |
|------------|-----|--------------|-----|------------------|
| M_AG_TC_I  | CCM | 10-FEB-1993  | KJS | 19-FEB-1993      |
| M_AS_TC_I  | CCM | 10-FEB-1993  | KJS | 19-FEB-1993      |
| M_BA_TC_I  | CCM | 10-FEB-1993  | KJS | 18-FEB-1993      |
| M_CD_TC_I  | CCM | 10-FEB-1993  | KJS | 18-FEB-1993      |
| M_CR_TC_I  | CCM | 10-FEB-1993  | KJS | 18-FEB-1993      |
| M_HG_TC_V  | CCM | 10-FEB-1993  | AH  | 16-FEB-1993      |
| M_PB_TC_I  | CCM | 10-FEB-1993  | KJS | 18-FEB-1993      |
| M_SE_TC_I  | CCM | 10-FEB-1993  | KJS | 19-FEB-1993      |
| TC_ABN_REG | TLR | 10-FEB-1993  | WSW | 15-FEB-1993      |
| TC_VOA_REG | TLR | 10-FEB-1993  | SAP | 19-FEB-1993      |

CUSTOMER : PRC-EMI

PROJECT : 309-R0603601 Merichem

| ANALYSIS ID | DESCRIPTION                               |
|-------------|---|
| M_AG_TC_I   | Silver, TCLP , by ICP                     |
| M_AS_TC_I   | Arsenic, TCLP , by ICP                    |
| M_BA_TC_I   | Barium, TCLP , by ICP                     |
| M_CD_TC_I   | Cadmium, TCLP , by ICP                    |
| M_CR_TC_I   | Chromium, TCLP , by ICP                   |
| M_HG_TC_V   | Mercury, TCLP , by GVAA                   |
| M_PB_TC_I   | Lead, TCLP , by ICP                       |
| M_SE_TC_I   | Selenium, TCLP , by ICP                   |
| TC_ABN_REG  | TCLP Acid, Base-Neutrals, Regulatory List |
| TC_VOA_REG  | TCLP Volatiles, Regulatory List Only      |

# BOOKMARK



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
HOUSTON BRANCH  
10625 FALLSTONE RD.  
HOUSTON, TEXAS 77099

FY-93

ESAT WORK ASSIGNMENT DIRECTIVE

From: Michael Daggett To: Bill Blanton  
ESAT RPO ESAT Team Manager

Date Deliverable Needed: 4-8-1993  
Date to ESAT: 3-24-1993

Originated By: Mahmoud El-Feky Date: 3-25-1993

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_  
(Section Chief)

Activity Name: MERICHEM Activity No. RCRA  
TID No. 6A-9210-2137  
Project No. 309-R0603601

DESCRIPTIONS OF ALL ACTIVITIES TO BE COMPLETED AND PRODUCT(S) TO BE DELIVERED:

Review the attached organic data package, CCS resubmissions, and other laboratory resubmissions using the Region VI guidelines for data validation. Prepare the data validation report and any required resubmission reports.

Laboratory: NDRC Number of Samples: 3  
This assignment has a LOW priority.

Date Requested Accepted by ESAT: \_\_\_\_\_  
Target Date For Delivery of Products: \_\_\_\_\_

From: Bill Blanton  
Bill Blanton, ETM

To: Michael Daggett  
ESAT RPO, Region VI



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